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THE BRICKBUILDER.

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ADVERTISING.

Advertisers are classified and arranged in the following order: —

	PAGE		PAGE
Agencies.— Clay Products	II	Cements	IV
Architectural Faience	II	Clay Chemicals	IV
" Terra-Cotta	II and III	Fire-proofing	IV
Brick	III	Machinery	IV
" Enameled	III and IV	Roofing Tile	IV

Advertisements will be printed on cover pages only.

IT has come to be the rule nowadays that if any one is injured around a building, no matter from what cause, some one else is expected to pay the bills. This view has not only gained wide currency among the working-men, but has been supported by many decisions of the lower courts. Fortunately for the principles of fair dealing, however, such decisions have frequently been reversed by superior courts, and while a belief is still held by the average workman that anything which happens to him of an adverse nature about a modern building will give him just cause for collecting damages from some one who is more blessed in this world's goods than himself, such belief does not obtain the final sanction of the law. Some years ago a building in New York collapsed under most distressing circumstances. The resulting investigation showed that one of the column foundations was altogether inadequate to the load placed upon it, affording ample cause for the failure. Further investigation showed that the foundation was properly planned and contracted for, but that the foreman of the work seemed to have deliberately made his footings smaller than the drawings called for. The heirs of one of the workmen who was killed in the accident brought suit against the owner, but the highest court of appeal has just decided that the owner, after having employed a competent architect and made contracts with a reputable builder, was not liable for the results of carelessness, ignorance, or maliciousness on the part of a foreman. The question naturally arises, Who is responsible in a case of this kind? And following out the very current theory that some one must pay for all our woes, the workmen would naturally seek to fasten the blame upon the most guilty party, which in this particular case was the foreman. But as this particular foreman was not blessed with attachable worldly goods, it is extremely probable that damages will never be collected. It is, however, a pity that at least a certain measure of the rigid accountability for bad workmanship which is insisted upon in France should not find its counterpart with us. We do not sympathize with the communistic feeling that we can make our neighbors pay for our mishaps, but, aside from any question of pecuniary damages, one of the conditions which constantly encourages poor workmanship is the fact that the responsibility therefor is so seldom pressed home in the right direction.

And this brings us back to a theme which we have repeatedly advocated in these columns; namely, the public necessity for limiting the practice of building, of architecture, or the direction of engineering operations strictly and solely to those who are qualified by education and experience to properly attend to the same. The attitude frequently taken by the parties in interest at an inquiry into the cause of a bad building accident reminds one of Thomas Nast's celebrated cartoon, showing the members of the Tammany ring standing in a circle, each man pointing to his neighbor, and saying, "He is to blame," and so passing the responsibility entirely around the circle indefinitely. Rigid legal liability may sometimes work hardship, but if it served no other good than to keep out of building operations the ignorant or the unqualified, it would be worth doing.

A striking incident directly in point occurred a short time since in one of our suburbs. A hotel was being built on speculation. The nominal owners bought the land, heavily mortgaged it twice or three times over, obtained some plans, and contracted with a builder to put up a certain structure. The whole scheme was rotten to the core from the start, and every one connected with it knew it, if we may judge by the results. The first to draw back was the sub-contractor for the piling. He found that when the piles were driven to the depth required by the contract, they seemed no nearer hard pan than if they had not been driven at all, and, very wisely, he immediately threw up his contract and abandoned it to another pile driver, who, less scru-

pulous than his predecessor, simply stuck his piles into the mud and left them for the masons to erect a hastily thrown together building thereon. Of course, the building went to pieces, and there has been no end of trouble ever since. The original promoters did not get out quick enough, so they failed to make the profit they expected to make by a quick turn before the building should go to pieces, and the principal loss fell on the mortgagees, who found their security rather worse than valueless. This is not an isolated example. We find such in every large city, and Budensicks do not all come from New York. We cannot hope to entirely prevent rascality, but we can, and we ought to minimize the possibilities for deliberate and dangerous swindling, by a proper system of restricting the practice of architecture and building to those who are qualified therefor.

WITHIN the past month work has commenced upon the demolition of the old Horticultural Hall of Boston. This has been one of the prominent structures of this city, and its passing means the disappearance of one of the landmarks. At the time it was erected, some fifty years ago, it ranked as one of the best buildings in the city. The front was what was, for those days, considered a very ornate one, constructed entirely in granite, with heavy orders in three tiers — Doric, Ionic, and Corinthian, and a considerable degree of embellishment with heroic-size statues in full relief. It is disappearing to make way for a modern office building. In the meanwhile the new Horticultural Hall, in another part of the city, is rapidly approaching completion, the society expecting to occupy it this summer. It would be difficult to find a more fitting comparison between the past and the present methods of architectural design than is afforded by these two buildings — the old and the new Horticultural Hall. The one represents the kind of blind adherence to tradition which, notwithstanding the limitations of the period in which it was created, managed to produce some buildings which were large, imposing in effect, with a big, generous scale which has only of late years been rightly appreciated. The best that can be said of the details is that they are correct. It is not a building of which, in an architectural way, we should to-day feel proud; and yet it is what we should have once been glad to call our best. On the other hand, the newer building eschews granite entirely, and presents a structure which is essentially brick in its character, and which is studied in a way which we like to think characterizes the best of our recent work. The details are proportioned to the general scheme, and the design is a comprehensive entity rather than an aggregation of independently correct units. In other words, the new building is a distinct idea, while the old one is a compilation; and right there is the emphatic difference between the best this country produced during the first three quarters of the last century and the work which we are turning out now. There is a monumental character about the new Horticultural Hall which is extremely successful, together with a satisfactory feeling of completeness which is quite independent of material. Nor can one have any thought that the ponderous, monumental sounding granite which was made to serve the older building would by its use have enhanced the artistic value of the modern structure.

SPEAKING of color, no one can ignore the Pan-American Exposition buildings. It is fair to say that never before in the world's history have buildings been created on such a scale and with such a lavish attempt at exterior polychromatic decoration. They are still too new for final judgment. A brand-new building always needs weathering and mellowing; but however they may change under the touch of the summer breezes, they are sure to present a most impressive object-lesson to our architects of what can be done with color. The buildings of the Columbian Exposition of 1893 were white throughout, the dazzling purity of the tone being only enhanced and accented by the restrained decorative spots of color at isolated points. Indeed, the only building at Chicago which attempted any marked polychromatic treatment was the Transportation Building, by Adler & Sullivan. The Buffalo buildings leave practically no white whatever, but every foot of wall service, every molding and ornament, every statue, is clothed in its mantle of light.

These buildings are all huge experiments. They are built of the shoddiest of materials, and will scarcely survive a single winter. They are mere full-size models, but they will undoubtedly have their effect upon the architecture of our country, and especially on the use of burnt clay, for in no other material would it be possible to repeat even an echo of the color treatment so successfully carried out at Buffalo. None of these exposition buildings pay in dollars and cents, but each one has been a powerful lever to awaken the art sense of our nation, to show what we can do, and to call out our best. Terra-cotta as an American industry dates practically from the Centennial Exhibition. Its scope was vastly widened by the lessons of the Columbian Exposition, and we feel perfectly safe in predicting that the next few years will show the abundant fruit of the lessons to be learned at Buffalo.

THE final award of the Rotch Traveling Scholarship was this year made by a jury consisting of John Galen Howard, of New York, Edward B. Green, of Buffalo, and W. T. Partridge, of Columbia University. That time passes rapidly is shown by the fact that Mr. Partridge, who was the seventh Rotch scholar, has this year assisted in the selection of the eighteenth. The prize has fallen to William L. Mowll, who was one of the first graduates from the architectural department of Harvard University, and is a student in the office of Peabody & Stearns. There were seven competitors this year. The conditions of this scholarship are too well known to our younger readers to require explanation. The prize ought to be one to call out the best efforts of every live young architect in Massachusetts. For that matter, its influence goes far beyond the borders of the Bay State, and several of the young men who have in past years achieved the scholarship came to Boston expressly to study therefor, and on their return from abroad have resumed their life in other cities, carrying with them, however, the benefits which this Boston institution has conferred.

Terra-Cotta in the Small Cities of Italy.

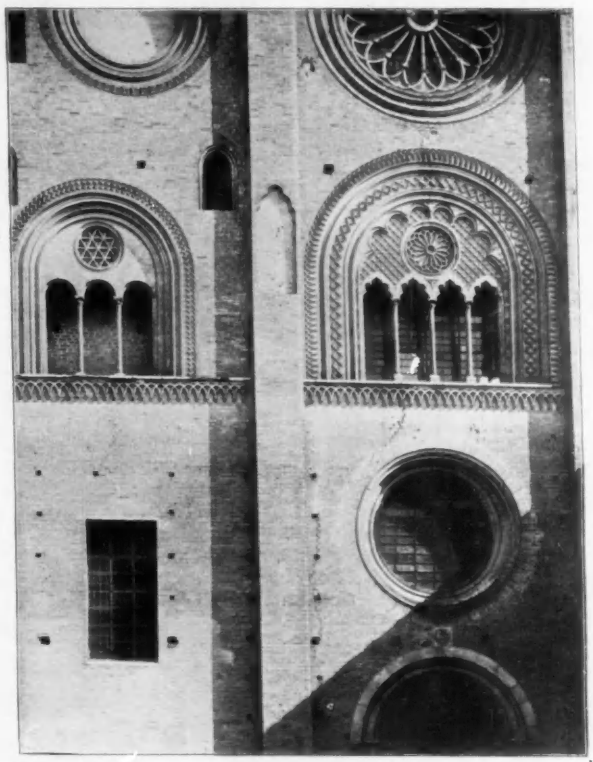
BY ALFREDO MELANI.

I WILL direct my reader's attention once more to the north of Italy, the region most rich in monuments of terra-cotta, and will stop at Cremona, a city near Milan, which is rarely visited by travelers making the tour of Italy. Cremona, which has had a glorious history and has given birth to so many renowned artists, ought not to be forgotten by those who visit Italy. From the particular point of view of terra-cotta, it ranks among the first cities of the peninsula. Its most important monuments in brick are the Torrazzo, the Cathedral, the Baptistery, the Communal Palace, and that of the Gonfalonieri; and these monuments recall and represent the most splendid period of the Cremonese life. Built in the Lombard or Romanesque style of which the origin is not to be found outside our region, they are the living demonstration of the power and wealth of the city at the time when these monuments were raised amid the enthusiasm which almost always accompanied in Italy these great constructions. Thus, among these, the Torrazzo has ended by representing alone the city of Cremona, almost a monumental symbol, as has happened in several other Italian cities. What this Torrazzo of Cremona which is loved by the Cremonese with a transport closely akin to fetishism is, is shown by the reproduction which accompanies this article, and I am bound to admit that this "campanile" is one of the most famous, lightest,

THE TORRAZZO AT CREMONA.

and most elegant in the peninsula; and although its renown is far spread, its history has been hitherto a mass of inaccuracies and mistakes. The truth about the Torrazzo is, finally, that far from being a monument of the eighth century, as has been stated by writers insensible to the language of forms (I speak of the foundations), it was only founded at least four centuries later than they pretend, that is, the earliest date of the monument is the thirteenth century. The ogival windows are the best witnesses of my opinion, which is accepted by the most serious writers of the peninsula.

My opinion, to speak truly, is not supported by written documents, but it is the monument itself which tells



WINDOWS IN THE SOUTH FACADE OF THE CATHEDRAL AT CREMONA.

the story of its commencement; besides, those who maintain the great age of the Torrazzo, placing its beginning during the eighth century, found their statements on a false and imaginative inscription, according to which on the 15th of April, 754, Stefano II. being pope and Astolfo, Seigneur of Cremona, king of the Longobards, the first stone of the tower was laid by the Bishop Silvino. If other reasons were not lacking to demonstrate the falsity of this Cremonese inscription, it would suffice to remark that Pope Stefano II. died in 752, two years before the date marked in the inscription (this pope lived only three days after his consecration), and the King Astolfo died in 738, seven years before the date of the same inscription. Whatever this may amount to, we know with absolute accuracy that in 1267 the square sides of the Torrazzo were finished, and as for the upper portion, we have reason to suppose that at about 1300 it was also finished. A document of the secret archives of Cremona informs us that in 1297 the Commune set aside certain revenues for the profit of the Torrazzo, which in this year found its work well advanced. The age of the artist-architect ought to be found here firmly written, but alas! in regard to the author or authors of this work the chronicles and the documents are mute, and no inscription

comes to our aid; so it would be puerile in the present state of our information to advance a theory or pronounce a name. The most exquisite part of the Torrazzo is the polygonal portion of two stories in height, which lifts itself above the square part, and it is only to deplore the fact that I mention here that a rose-colored lime wash covers, vandal fashion, the fine red color of the brickwork which makes the background for the ornamentation of white stone, and causes the finest part of the Torrazzo to resemble something like a superfluity beside the square portion which preserves the natural red color of the bricks. This extravagance should not surprise my reader, who knows that in Italy, at a time, alas! not long ago, brick construction was considered vulgar, and certain monuments received coats of lime wash by order of competent authorities, and this was the case with the Torrazzo.

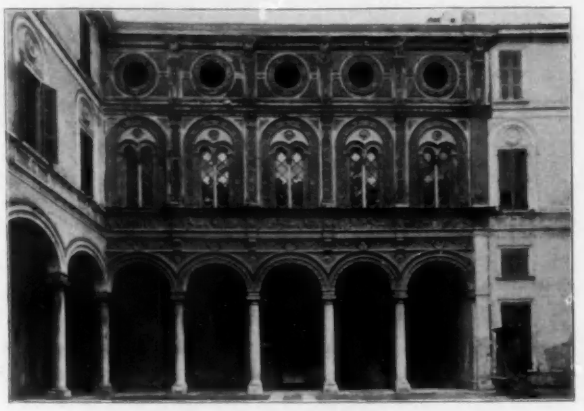
The tower always accompanies the cathedral, of which it is the campanile, so here I have not wished to separate it, and the reader will find reproduced beside the Torrazzo the detail of two windows of the cathedral of Cremona, an edifice in part more ancient than the campanile. The Cremonese cathedral was commenced in 1107 (as is assured by an inscription which has always existed), but ten years after it was ruined by an earthquake. Immediately recommenced, it was almost entirely finished in 1196, but it was not until 1287 that our monument received from Giacomo Porrata the splendid rose window on the principal façade, which leads us back to the windows shown in the engraving, which are the finest ornaments of the south façade, and take us beyond the time

PALAZZO DEI GIURECONSULTI.

of Giacomo Porrata to 1332, the period at which the south arm of the cathedral was built by the artists Franceschino and Canino de' Taselli. The other part, that is, the north arm of the church, was finished in 1288 by the artists Bertoldino Bragerio and Giacomo de Camperio.

Here is another Cremonese monument of capital importance, the Palazzo dei Giureconsulti, a work in brick built in 1292, at the period when the Torrazzo received its finishing touches. This building has not the *finesse* of the ornamentation of the famous building at Piacenza, of which mention will soon be made; but the Cremonese structure should not be passed over by those who are making a study of Italian brickwork.

Among the edifices I have chosen for reproduction the fragment of the court in the Palazzo Stanga, whose lower portion, with its great entablature sustained by



COURT OF PALAZZO STANGA.

little consoles, may be cited as a model of the architectonic style which flourished in Lombardy at the end of the fifteenth or the beginning of the sixteenth century. Especially worthy of notice are the proportions of the portico, the richness of the ornamentation, and the charm of the profiles, which reveal a true master,— a master exquisitely skilful in decorative architecture; and truly brick can only be used successfully by the master ornamentists, by the poets among the decorators; the latter alone can use it tastefully and understand all its resources. The luxury of the ornament in the Stanga court attains such a ravishing effect as to be worthy of being cited as an example; for here the richness of the ornamentation does not distract the eye from the architectural lines, a merit not always found among the architect ornamentists.

Returning a step chronologically, we will notice a very beautiful fragment, a rose window belonging to the Broletto of Brescia, in the Gothic style of the Torrazzo and of the Palazzo dei Giureconsulti of Cremona. Even this Lombard city is forgotten; the traveler casts a glance from the car window as he passes on his way from Milan to Venice, taking no account of the importance of its monuments. Its picturesque church of the Miracoli and its old Broletto or Communal Palace, which presents at present the appearance of the fragment in brickwork, which we reproduce, are important objects for the artist and the traveler who love the beautiful. If I could stop to-day in this city, which has given birth to one of the most celebrated women in the history of humanism, Veronica Gambara, Countess of Correggio, and to a painter of the worth of Vincenzo Toppa, the famous chief of the Lombard school, I would show you that Brescia, among the secondary Italian cities, is one of those where the ornamentists had the best reason to rejoice.

But still other cities and other monuments await us; and if the reader will glance at my illustrations, he will perceive easily that I have culled the finest specimens from the field of our researches.

Lodi, with its façade of the Casa Ghisalberti, is the first city that we encounter. We are not getting far distant from Milan; on the contrary, we are merely taking the route opposite to that to Brescia. We take the great line which unites Milan to Florence, and Florence to Rome and Naples, and our stop is the first stop of the

CIRCULAR WINDOW IN THE BROLETTO, BRESCIA.

express running from Milan to Florence. "One minute's stop" announce the employees of the railway to *messieurs les voyageurs;* and among these last there will be many who are ignorant of the fact that the little town of Lodi contains artistic works of considerable worth. The church of the Incoronata, with its jewels of decorative painting, would suffice to justify a stop-over at Lodi; but the locomotive whistles, and, the minute passed, steams blustering over the Lombard plain. Beside the principal works of Lodi (among these should be placed the Gothic Church of S. Francesco, with its very important decorative paintings) are cited the terra-cottas, which are illustrated. The great frieze which runs below the monumental door has the delicacy of the most remarkable terra-cottas of Milan and of the Certosa di Pavia, of Bologna and of Ferrara; and while the marine deities who hold in their hands the pretty garlands, and the other divinities who gallop over the tranquil waves recall the friezes of Aemilia, the friezes which ornament the windows seem to be the paraphrase of those which are found around the windows of the Grand Hospital of Milan. These *putti* who frolic in a charming decoration of leaves and flowers are *ravissante*, says Burckhardt, in the midst of this architecture, which has in its profiles none of the *finesse* of the portico of the Casa Stanga; but the frieze is a piece of a much more important work than the friezes of the *putti*, and, for my part, I put this frieze among the most beautiful decorations in brickwork of north Italy. In the highest degree pagan, it is a souvenir of similar fragments of antiquity, in sculptured and mosaic motifs, and I deeply regret that the name of its author is unknown. How many unknown artists, including those who helped the architects, who are generally the only ones remembered, toiled to make these architectonic monuments! A special study of the decorators in terra-cotta is to be made in Italy; and the writers to whom this difficult task has been given will make a meritorious work, and will enrich it, I am sure, with the history of the art of a precious capital.

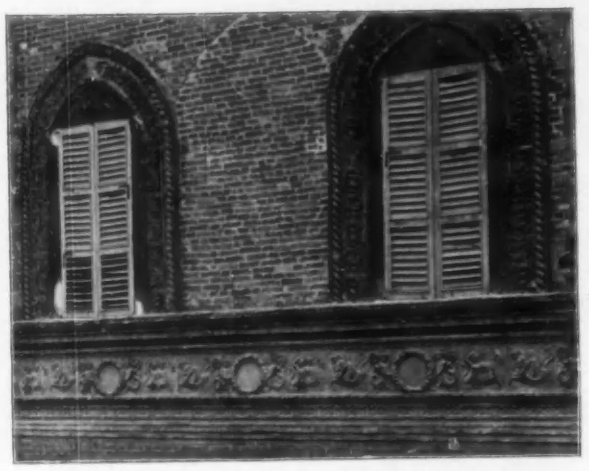
I have spoken of the resemblance of the frieze of Lodi to the friezes of Aemilia. This reminds me of the custom which existed at Bologna during the fourteenth, fifteenth, and sixteenth centuries of giving a red tint to the terra-cotta. This solid preparation, the nature of which is not yet well known, was intended especially for the preservation of the bricks, and I am not informed whether the terra-cotta of Lodi presents any traces of it, for in order to decide upon this delicate matter, experiments would be necessary, which I have not undertaken upon the edifice in question.

Let us stop for a moment at a little town near Parma, Borgo S. Donnino, situated on the same Milan-Florence railway where we found Lodi. It is a town of less than five thousand inhabitants, of entirely secondary interest, which, however, occupies a place of some importance in the national art. Provided with a very remarkable cathedral, with sculptures which are among the most interesting of the twelfth century, Borgo S. Donnino possesses

PORTAL OF CASA GHISALBERTI, LODI.

a little chapel with terra-cottas, clinging to the side of the cathedral. The reader, looking at my illustration, will notice the heaviness of the upper entablature, which is evidently a superfluity, and that the beauty of the structure does not extend beyond the second entablature. The type of the ornament of the chapel of Borgo S.

Donnino is adapted leafage, differing from that of the Casa Ghisalberti at Lodi, where figures interlace with the leafage. Although my reproduction can only give a weak idea of the original, my reader will perceive him-



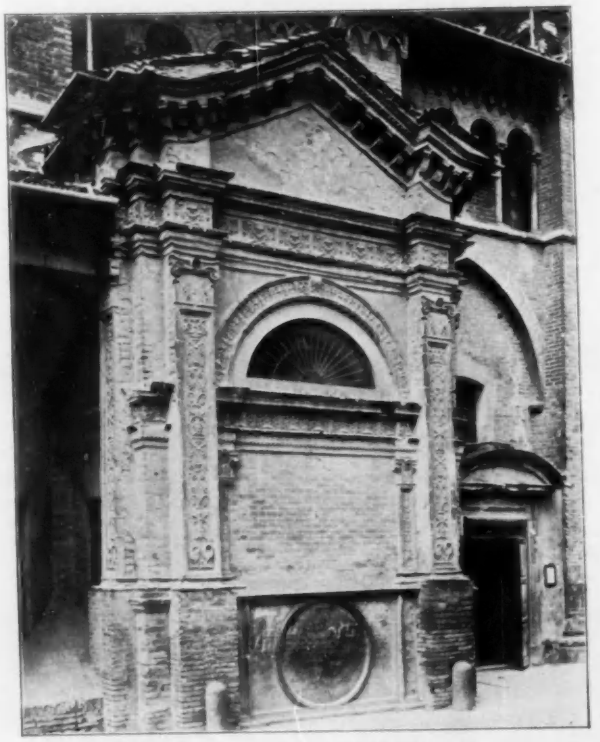
WINDOWS AND FRIEZE, CASA GHISALBERTI, LODI.

self to be in the presence of a work which should be preserved with the greatest care.

The fragment, exposed as it has been during three centuries to all sorts of injuries, reveals to us marvelously the excellent manner in which the workmen of the period executed their terra-cotta work; and the endurance of these delicate decorations arouses a sentiment of surprise and satisfaction. I do not wish to leave this chapel, little known and almost ignored as it has been, without calling attention to the friezes, which achieve an absolute charm by means of an original design divided into small sections, which repeat without fatiguing the eye. The richness of the ornament is well brought out, and the effect is heightened by the quietness of the cornices, the capitals, and other parts of the chapel, which contrast their surfaces to the ornaments in relief. This knowing distribution of ornament always has an excellent effect, and is common to the Italian monuments in terra-cotta, and an overloaded monument is difficult to find. Thus, near Borgo S. Donnino, in a city otherwise quite important, stands one of the finest palaces in Italy, of great richness in that which concerns its details, but of a fine sobriety of ensemble, and this palace gives a fine idea of this *contraposition*, or placing of ornament. Those who know the Italy of the region that we are traversing, have already heard of the Palazzo Communale of Piacenza, sometimes called the Gotico of Piacenza. It is of this monument that I wish to speak, where the use of brickwork has attained a marvelous result. Below, a portico supported on massive piers of marble in primitive Gothic form, above, bricks everywhere, the imposing semicircles framing windows composed of colonnettes and of a great arch ring, wide but not deep, and of a most striking expression. A remarkable analogy exists between the Gotico of Piacenza and the Palazzo dei Giureconsulti at Cremona, but I have noticed in the building at Piacenza a finer and more distinguished taste; and in the same way an analogy can be traced between the wide windows of our building and those of the Cathedral of Cremona, but the first are superior in possessing an amplitude and a nobility which in work of this kind has been rarely surpassed. Fortunately, an inscription carved on the façade of the Gotico informs us of the year of its commencement and the names of the architect builders, and at the side of these words, MCCLXXXI, DIE. XVI. APRILIS. FUIT. HOC. OPUS. INCEPTUM, one reads easily the names of the architects Pietro Burgeto, called otherwise Da Borghetto, Gherardo Campanario, Pietro Cagnano, and Negro dei Negri.

The architects who built a palace as important as this must have occupied a remarkable place in their time. What, then, are their works both before and after the Palace of Piacenza? Hippocrates would say the answer is difficult, or entirely impossible. No document or evidence exists bearing on the career of Burgeto, Campanario, Cagnano, and Dei Negri; and at the present time we are reduced to merely affirming as we gaze on the palace that the artistic life of these architects was admirably complete.

Piacenza is ornamented with other edifices of brick, and possesses in its Palazzo dei Tribunali (formerly Palazzo Landi) a magnificent fragment of a façade that I regret not to be able to show in the reproduction. Near Piacenza, Modena and Reggio ought to detain us. At Modena, the brick façade of S. Pietro and the Palazzo Coccapane are specimens of some importance on the



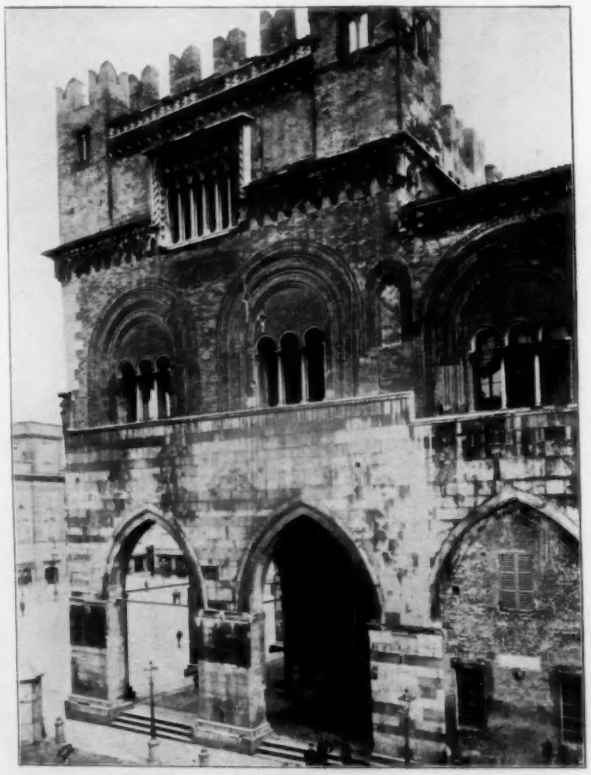
CHAPEL AT BORGO S. DONNINO.

subject of terra-cotta — works of the early Renaissance; and at Reggio, the pretty Palazzo Vizzani Pratoniere should be seen, a work in brick of the same period as the preceding.

In our excursion through a respectable number of small Italian cities, we have not stopped to notice any tombs. Brick has been successfully used, a great many

times in funerary architecture, and Italy possesses a series of these monuments in terra-cotta in churches which, although passed over in silence by most writers, could furnish material for important study. For all the cities, which built largely of brick, constructed tombs and even altars in terra-cotta, and citing at random, I remember that one of the finest funerary monuments of Bologna, that to Alessandro V. (died 1410), lately rebuilt, the work of the artist Sperandio da Mantova, is in terra-cotta. To glean through the field would be an attractive task, for it would perhaps bring unexpected results, knowing, as we do, that many of the decorative works have been covered with a bed of white or of gray to the great profit of their æsthetic quality (!!). And as funerary tombs in terra-cotta are in no way a specialty of cities where brick is the ordinary building material, here is an example of a tomb belonging to a small city of Tuscany, Arezzo, — the tomb of Antonio Roselli (died 1467) in the church of S. Francesco.[1]

It is, perhaps, well to recall that Arezzo was one of the cities of the valley of the Arno which close around Florence like a great girdle of flowers. Who has not perceived our city in passing on the journey from Florence to Rome? But like Lodi, Arezzo, which is more important than the Lombard city, is not one of the cities to which travelers ordinarily devote even a half



LEFT FRONT OF PALAZZO COMMUNALE, PIACENZA.

day. It possesses, however, numerous monuments, the Pieve, the cathedral with its incomparably beautiful windows, a museum, and the church of S. Francesco, which apart from the tomb of Roselli, the principal object of consideration, contains the celebrated frescoes of Piero della Francesca. The tomb, which in artistic merit cannot rival the frescoes, is of a very curious character in its ensemble and details, belonging to the

MONUMENT TO ANTONIO ROSELLI, AREZZO.

transitional style, with classic detail placed side by side with the Gothic elements.

The strangeness of the tomb increases if one considers that the monument was practically executed in the Gothic style during the full flowering of the Renaissance. This seems to be justified by the fact, that in a small place one could use up old pieces of terra-cotta without exciting the sleeping critic. Not knowing the author of this tomb, we can only say in general that it belongs to the school of Niccolo d' Arezzo, an eminent artist, less known than he deserves.

He was the supposed author of the tomb of Alessandro V., to which I have just referred, and was certainly superior to the unknown author of the Roselli monument, which has, however, certain qualities worthy of notice — the beauty of the head of the recumbent personage, which is not equaled by the too meager draperies. But this is a fault of the period which was influenced by Masaccio and his school rather than of the artist, who recommends himself to our attention by the elegance of the well-conceived sarcophagus, and the air with which he has modeled the leafage.

The Roselli tomb is only a specimen of a series of monuments of a kind not too much cultivated in Italy, but always worthy of study; and if some day or other I am able to make a study of this kind of art, I shall feel it an honor to acquaint the readers of THE BRICKBUILDER with the results of my investigations.

[1] Beside the tombs and the altars might be placed the altar tables, which preceded the tables of enameled clay made by the Della Robbias. The National Museum at Florence has one of these little tables in a mediocre Tuscan Gothic style, but important from the fact of the existence of this kind of productions. I do not mention the numerous lunettes with figures in relief or in bas-relief, in painted terra-cotta on the tombs, altars, etc., which inspired Luca della Robbia to the application of enamel on the sculpture of painted clay.

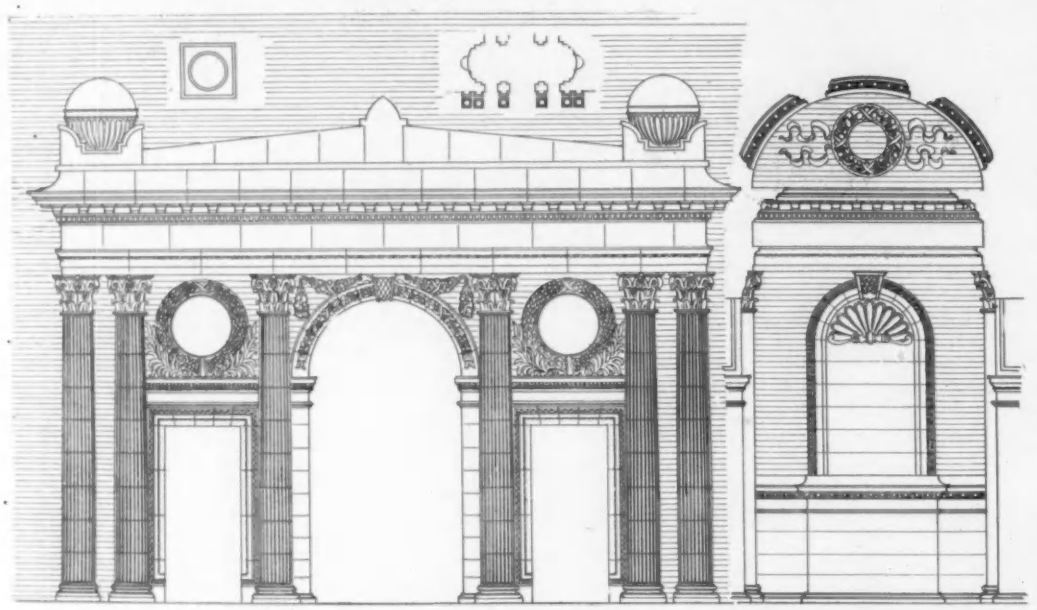
"The Brickbuilder" Competition. VI.

AN ENTRANCE TO AN ART MUSEUM.

CRITICISM OF COMPETITION.

PROGRAM.

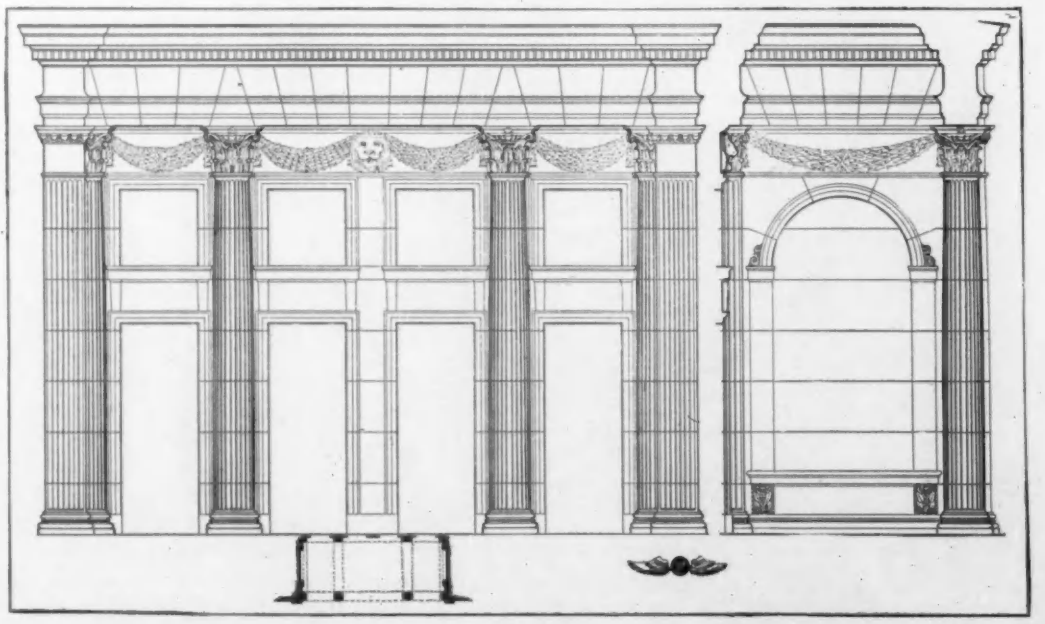
THE design is to provide for the entrance porch of a large metropolitan art museum, of the nature of the South Kensington Museum, London. The entrance will be in the center of a perfectly blank wall, permitting of an individual treatment without reference to the design of the building as a whole. The entrance should be recessed 10 ft., and should allow for four doors, each 3 ft. wide, besides such transoms or side lights as are incidental to the character of the design. The entrance leads to the first floor, which is supposed to be at an elevation of 8 ft. above the street, a flight of steps leading thereto projecting from the line of the building. Any treatment of columns, pilasters, or buttresses is to project from the building line. The height of the first story is to be 20 ft. in the clear. The design is to be such as is adapted to working out in burnt-clay products.



NO. 1.

The result of THE BRICKBUILDER Competition Number VI., for an entrance to an Art Museum, is unfortunate. Mr. Edward Robinson, who was judge of this competition, has decided that none of the designs presented is worthy of a prize, a decision in which I heartily concur, and I have been asked to say something in regard to this conclusion.

These competitions have been instituted to encourage the study and treatment of burnt-clay products, and to commend and reward ability in architectural design in those products; and an award in these competitions is assumed to indicate merit. There are abundant precedents in North Italian work of the twelfth, thirteenth, and fourteenth centuries, and in North German and English work of the present time to guide an intelligent student. Such works as those of Street, of Strack, and the book of suggestions by Frank Miles Day are sufficient for some enlightenment on the subject. Burnt clay must, by the limitations of the firing, be a material used in comparatively small pieces — as compared with stone — and, therefore, has a smaller scale both in its detail and its motives (excepting in wall surface masses). The competitors in most cases have seen fit to ignore this fact and have merely transposed stone forms into terra-cotta, without the changes in those forms natural to the change in the material. If this were the only objection, such a design as Number I., while ignor-



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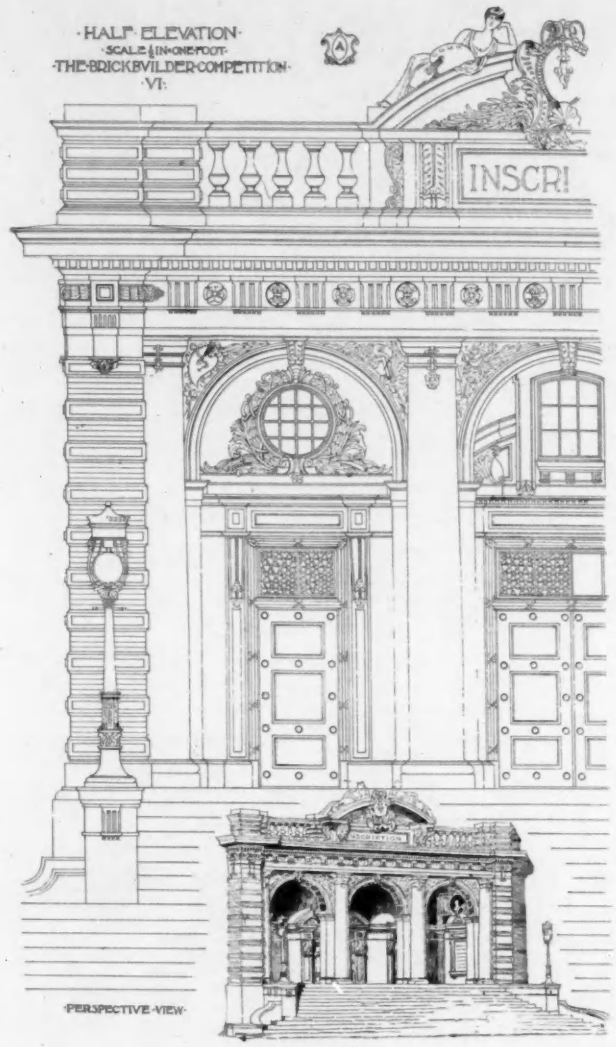


NO. 3.

ing the four doors (unless a double door can be counted as two), would be worthy of the award; in fact, the design is the only good one in the entire set, as in most cases orders of architecture are used without the slightest observance of their proportions. With the constant teaching of the orders in the schools, it should be unnecessary to impress upon draughtsmen the fact that their proportions have been determined by the ablest architects in history and by centuries of use, and that it is foolish to experiment with these proportions, excepting, perhaps, in small details under stress of conditions. The chief fault of the designs is lack of relative proportions of parts.

To rapidly analyze the designs:

Number I. is good in proportions; entablature seems not sufficiently decorated for motives below, and corner globe terminals, while in scale as far as mass is concerned, are much out of scale in detail; treatment of arch surface as considered with arch soffit surface is weak.

Number II. would have effect of thin frame to the opening; poor cornice profile; lion's head out of scale and unnecessary. If openings were pochéd, it would appear that the transoms were too wide and too low.

Number III. Bad connection with wall of building; bad relation between parapet corner piers and piers below; corner piers below too narrow for length of architrave; balusters unnecessary. Pediment motive requires very careful treatment; brackets are too heavy for facia above. The whole design has in it too many minor motives too much scattered.

Number IV. Figure frieze too broad and heavy even for the Doric order below.

Number V. General proportions good; relative proportions of details not studied especially in frieze; too many angular block forms in voussoirs, etc., disturbing general proportion.

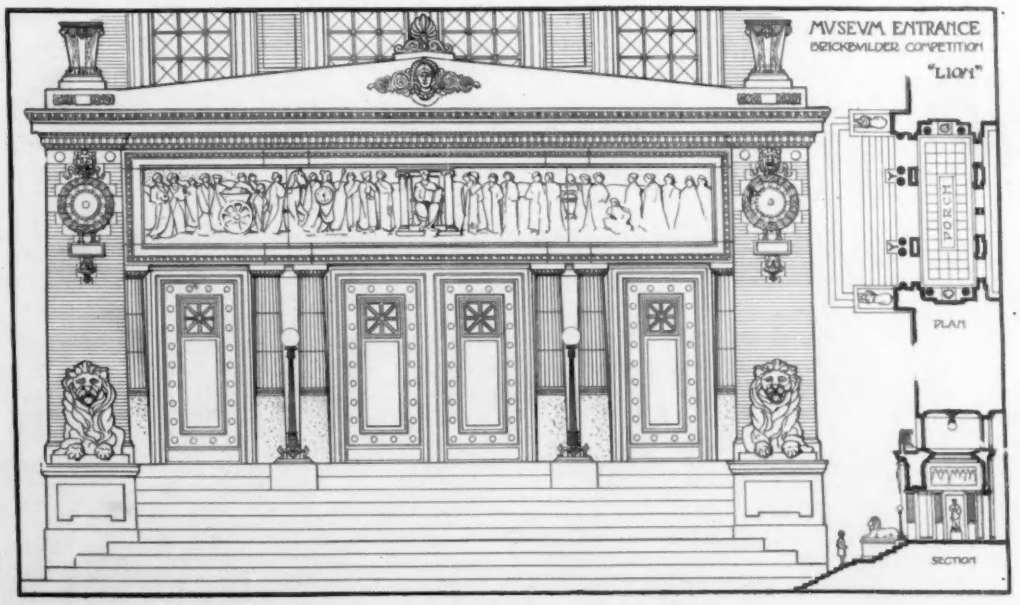
Number VI. Is not apparently certain whether his motive is that of a pierced pylon, a frame, or a loaded arch.

Number VII. Has adopted a terra-cotta treatment, but with uninteresting detail and bad division of tympanum, especially behind the figure.

Number VIII. While adopting a simple and good motive, has placed inadequate divisions between the doors, and for the sake of a title tablet, has overloaded the door heads.

It is unnecessary to mention the remaining drawings.

—C. Howard Walker.



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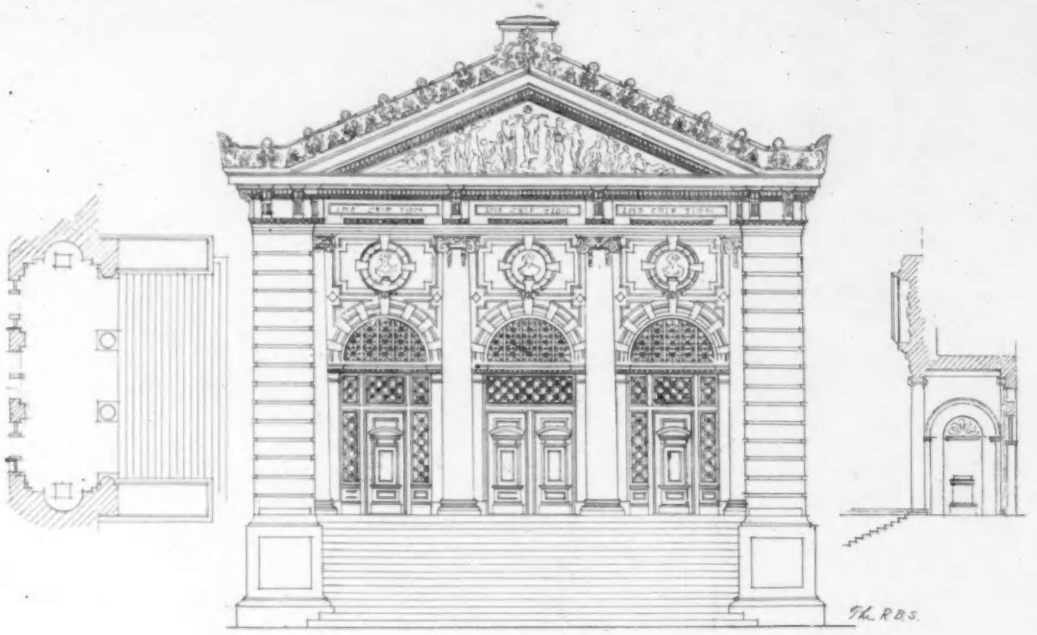


NO. 5.

CORRESPONDENCE.

EDITOR OF THE BRICKBUILDER:

Dear Sir: — The editorial on the first page of THE BRICKBUILDER, April number, on the protection of structural steel, leads me to add a few words in partial support of Mr. Abbott's article in the *Insurance News*, which you quote. Unfortunately, the subject of rust protection, as well as fire-proofing, has not yet received adequate consideration. But to discuss the question of rust-proofing alone. Mr. Abbott is entirely right when he says that ironwork intended to be enclosed (*in concrete*) should not be painted, and also that it should be absolutely clean and free from rust and mill scale.

The matter of rust-proofing is so simple and so easily understood, when once the causes of rust are known, that there is little excuse for ignorance if one is diligent in seeking causes.

Rust is the hydrated oxide of iron, and is caused by the agency of *three factors working together*, viz., water, oxygen, and an acid. These three factors must be present to produce it. See Ledebur's "Handbook" on the oxidation of iron, etc., pp. 277–281. See also *Proceedings of the Engineers' Club of Philadelphia*, vol. xii., p. 225. See also Kent's "Engineers' Pocket Book," p. 386, quoting from the *Chemical News*, which gives the results of the exposure of *perfectly clean* blades of steel to the action of

Dry oxygen and carbonic acid gas mixed, with no corrosion.

Damp oxygen and ammonia, no oxidation.

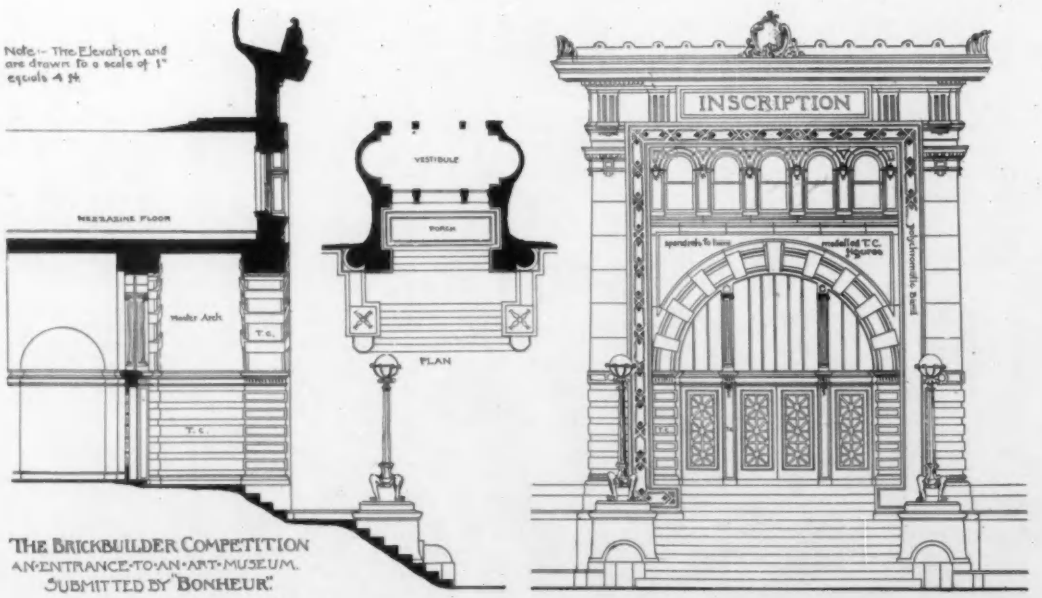
Damp carbonic acid, slight appearance of white precipitate of carbonate of iron.

Damp carbonic acid and oxygen, oxidation very rapid.

Iron immersed in water distilled, freed from gases by boiling, rust in spots found to be due to impurities.

The chemistry of the matter is very simple; the precaution also very simple; keep these three factors apart, that is, the water, the oxygen, and an acid.

The practical procedure in rust-proofing also is very simple, and should be, first, clean the metal down to the actual surface, then apply the concrete composed of Portland cement and a neutral sand, with or without an aggregate of neutral crushed rock; slag should not be used under any circumstances. This material should be rammed so that it is in actual contact with the surface of the metal, and free from voids or faults. The aggregate should be in small pieces, or it is liable to "bridge"



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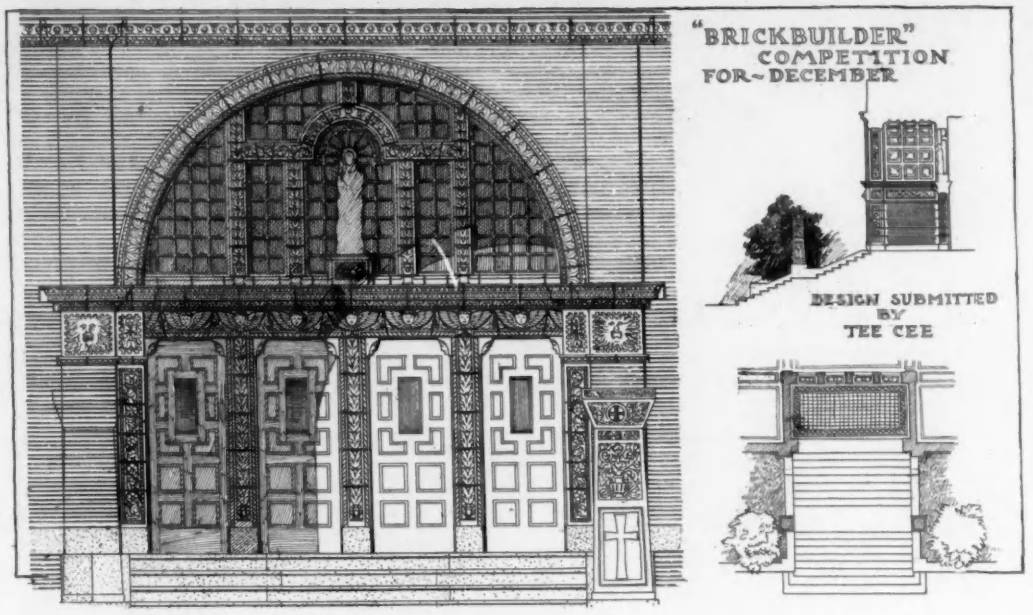


NO. 7.

over and cause a void below it. Concrete containing a liberal quantity of cement should be used for this reason. Portland cement is a product of lime and forms a convenient base for the absorption of any acid likely to be found under ordinary circumstances, so that any water finally reaching the metal by infiltration is free from acid and consequently harmless.

Brickwork covering is, therefore, not suitable, as it cannot perform the chemical function which the cement performs. Therefore, all iron work, which is covered up and cannot be painted at intervals, should be encased in a concrete envelope, both above as well as below the ground line.

Painting iron work which is to be enclosed in concrete is a distinct detriment, because the lime in the cement destroys the oil, and then there remains the loose pigment, which prevents the close contact between the cement and the iron which is essential, and permits the accumulation of water which may filter through the concrete, and may become dangerous if the pigment is an oxide of iron or electro-negative to the metal. Painting is not only worse than useless, but dangerous.

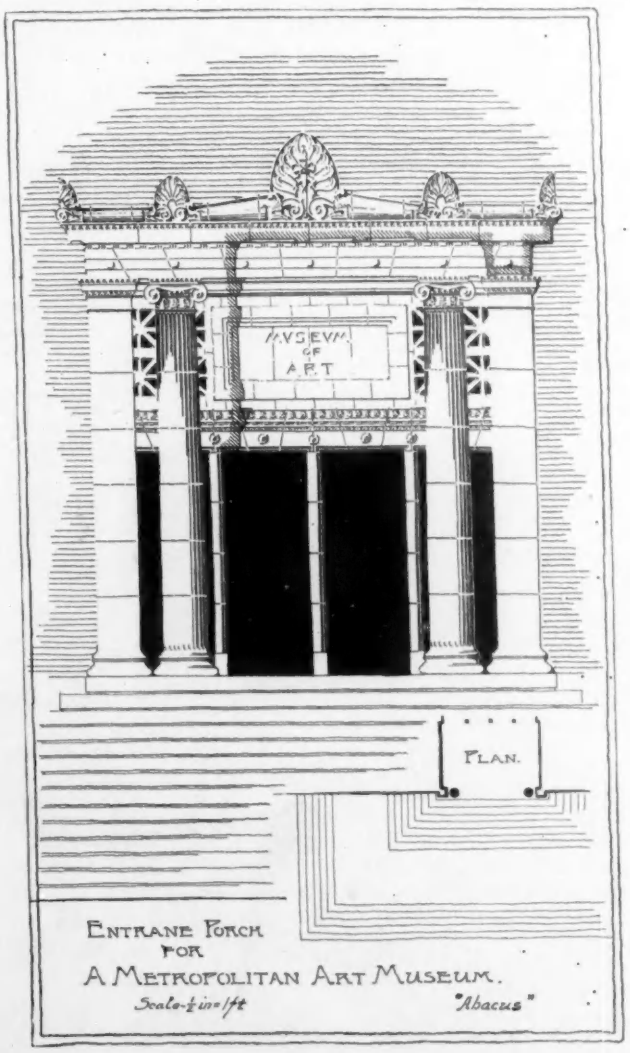
Rust in iron work is augmented by galvanic action. Two substances, one electro-negative to the other, will cause it in the presence of dampness. Mill scale and slag are such active corrosive agents that in the plates used in the hulls of ships it is necessary to get rid of this scale and slag either by pickling, or by the sand blast. If paint is applied to the ship plates without the scale and slag being removed, "rust cones" form around these points under the paint, because paint is not impervious to moisture. The inner sides of the plates are covered with cement or asphaltum compound to prevent the bilge water from corroding them. It is surprising in view of the experience in rust-proofing vessels that go in the water, that so little seems to be known as to how to protect buildings that stay on the land.

The cause of corrosion is known; the means which can be used to prevent are also known; therefore, the ignorance exhibited, or the carelessness shown by responsible designers in not using the means at their hand in preventing the decay of costly buildings, is criminal.

Wm. C. Furber,
Philadelphia, Pa.

A CORRECTION.

In the March number of The Brickbuilder there was illustrated a house at Weirs, N. H., and by mistake the name of Mr. Herbert Dumerasq given as architect. Mr. Dumerasq is the owner of the house, and Henry J. Carlson, Boston, architect.



NO. 8.

The Life and Work of Rafael Guastavino.

PART II. WHAT IS COHESIVE CONSTRUCTION?

BY PETER B. WIGHT.

IN reviewing the work of Rafael Guastavino in America, where he is known rather as a constructer and contractor than as architect, an answer must first be given to a question which will naturally be asked, "What is cohesive construction?" This can be most easily answered in his own words taken from the paper before referred to. After dividing construction in general into two generic kinds, "mechanical construction, or by gravity," and "cohesive construction, or by assimilation," and leaving out of consideration wood and iron constructions, he says: "The first is founded on the resistance of any solid to the action of gravity when opposed to another solid, and from these conjunctive forces, more or less opposed to one another, results the equilibrium of the total mass, without taking into consideration the cohesive strength of the material set between the solids. The second has for a base the property of cohesion and assimilation of several materials, which, by transformation more or less rapid, resembles nature's work in making conglomerates." This is a generic definition, and the second includes all structures in which several materials are combined to produce a monolithic material. It may mean a concrete wall or arch made with cement, sand, and other ingredients, or the various combinations of concrete with various stiffening materials, or the addition of steel, to give them greater resistance to tension or compression in certain directions. For illustration, the hollow tile fire-proofing systems are gravity systems, and the Monier system, in which concrete is stiffened with steel, is a cohesive system. All Persian, Roman, Byzantine, Mohammedan, and early Spanish systems of construction, in which concrete formed the main material, and bricks and tiles the subsidiary material, were cohesive or monolithic.

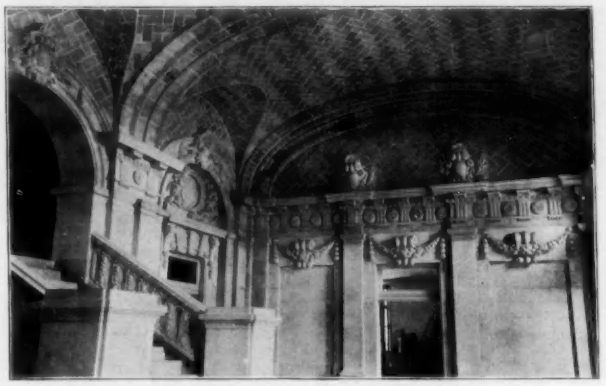
The difference between these and the Guastavino system is that in the latter the hard-burned, flat clay tiles form the principal part of the mass, and the cementing material the smaller part of the mass. To a certain extent good brickwork laid in strong hydraulic cement is cohesive construction after time has hardened it, but it is always laid and used according to the same principles that control all kinds of gravity construction. Bricks are laid, breaking joints, just as tiles are in the Guastavino system, the difference in favor of the latter being its decreased weight and increased strength in proportion to each unit of weight, making it far superior to brickwork for floor, roof, and dome constructions. This is one of the natural results of an evolution that has been going on for a long time. In the paper before referred to, Mr. Guastavino says on this subject: "During the fifteen hundred years that the cohesive construction has been in use, all the improvements and inventions have been, as we have said, toward the idea of obtaining the maximum strength with the minimum weight and ratio of the mass of materials compared with the space covered."

For the information of those who have not used or seen this latest invention of cohesive construction executed, it will be well at first to describe the materials used, and how the work is set. Only three materials are used: hard-burned, flat clay tiles, Portland cement mortar, and plaster. The tiles are generally 6 by 10 ins. or 8 by 12 ins. in size and ¾ in. in thickness. They are made in this country on clay presses, which run them out through mandrel dies in gangs of six each, cut off to the proper length with a wire. These square blocks are so scored that after burning a smart blow will cause them to fall apart into six, flat, rectangular tiles, having rather a rough surface well adapted to the adhesion of cement or plaster. The process in this country is very much cheaper than that followed in Spain, where the tiles are made by hand in molds, though labor there is much cheaper than here. The tiles are also more uniform and true. They were thus made before Mr. Guastavino came to the United States, in 1881, for covering flat roofs, being laid in Portland cement over coated felt. Hence he found material better adapted to his purpose than that which he had previously used, and with such change as was necessary in size and thickness, they were all that he wanted. The simplicity of the system can be illustrated by the fact that one size of tile would be sufficient to perform all the examples of cohesive construction that have thus far been executed.

THE PROGRESS CLUB, NEW YORK.
R. Guastavino, Architect.

In building a simple floor arch, supposing it, for example, to be set between four brick walls properly tied

together, and that the arch is 8 ft. wide and 20 ft. span, the first course of tile is set as a skew-back on a ledge or in a groove in one of the short walls, which is slightly elevated in the center. These are set, using only a light frame center slightly curved, and as wide as one tile, and the joints between edges of the tiles are of pure plaster of Paris, used only on account of its quick-setting properties. A second course of half tiles is set on top of



CITY HALL, BINGHAMTON, N. Y.

these and breaking joints with them next to the wall, with rich Portland cement, the joint being not more than one-quarter of an inch. As soon as this second course of tiles is set, the whole will be self-supporting, and the curved board is moved out to serve as a center for the second row of the first course of tiles. This is set the same as the first row with plaster at the edge joints, and the second row of the second course is set on top of them with Portland cement mortar, breaking joints and covering only half of the second row of first course tiles. Then the first row of the third course of tiles is set next to the wall, covering the first row of half tiles set in the second course and half of the second row of the same course. This brings the thickness at the skew-back to 3 ins., which is the thickness of the completed arch. The next row of first course tiles is then set as before, then a row of the second course and a row of the third course, and so on until the arch is built across the twenty feet. The curved centering is set for each row of the first course to a guide traced on the side walls of the space to be covered and indicating the rise of the whole arch, which is presumably about 2 ft. in 20. Only the simplest conditions for building a cohesive or timbrel arch are here given for the purpose of illustration. It will be seen that the plaster used plays a very small part in the construction. It is used for convenience only on account of its quick-setting properties to keep one isolated row of tiles in place until the next course can be set above it. When completed with three courses of tiles, the arch has two bed joints of Portland cement through its whole area, and only the edge joints of one course of tiles are of plaster. The breaking of the joints in both directions practically makes the arch homogeneous if the cement becomes as hard as the tiles.

It will thus be seen that the Guastavino cohesive construction depends as much upon the quality of the cement used as of the tiles, and is only reliable when the best Portland cement is used in the most careful manner. It was only because Mr. Guastavino found when he first visited the United States that it was a market for the best grades of Portland cement that he decided to change his residence and make this the field of his future operations. Here at last were the ideal materials he had always longed to have. While he saw that the opportunities were great, he had no other encouragement at first. At the time of the Centennial Exhibition at Philadelphia in 1876, a number of photographs of his work as an architect and inventor was exhibited in the Spanish government section; and having received a medal for these, he felt encouraged by that alone to visit this country as soon as he could find it convenient to do so. This did not occur until 1881. He gives an account of some of his early experiences in his book on "Cohesive Construction," published in 1893. Of these he said: "I had not been here long before I recognized the necessity of studying American methods, materials, and facilities. To this work I devoted five years." He had determined to introduce his system because he had found the best materials here for it, but he was full of anxiety lest a failure with new and untried workmen might endanger their lives, and that the arches, being for floors and requiring speedy work, to meet our requirements, might not become sufficiently firm before they were used. He says: "Explanations were given to interest prominent architects and builders; but some seemed to take the matter as a dream, or as though I were a visionary; while others, more benevolent, said it

CITY HALL, PATERSON, N. J.

might be beneficial in Spain or Italy, but never in this country, so different in climate, processes, and necessities." His anxiety at first about getting tiles was not well founded, for, as above stated, such tile were then being made for other purposes, though he did not know it.

His first work was done in 1886 in a four-story private house on 78th Street, New York, and later in the Arion Club, 59th Street, whose building committee accepted

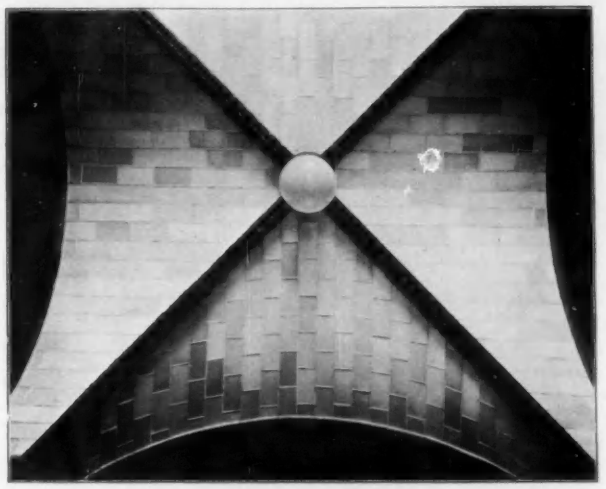
his proposition, when they ascertained that with his arches they could make a saving of over $5,000 in two floors alone, largely on account of the amount of iron that was omitted.

With this experience and a series of experiments that he undertook in New York, he commenced the study of his art along scientific lines, and endeavored to adduce formulas based on constants, which for the first time in his experience he was able to obtain. Part III. of "Cohesive Construction" is devoted to an explanation of these investigations. He found that the cohesive strength or resistance to shearing of two hard tiles cemented together with good Portland cement was equal to 124 lbs. per square inch, so that this could represent the cohesive strength of an entire arch whenever the tiles are as hard as the cement. Then as the butt joints are not depended upon to sustain the arch, there could be no shrinkage of joints to cause it to contract, as is the case with all brick arches, and curved boards used for centering could be replaced after the work had been fully set, showing that there had been no settlement. Another test for tension in a section of three courses of tile laid with two courses of cement gave a tensile strength of 287 lbs. per square inch on work ten days old, as the average of two tests, while the average of four compression tests was 2.060 lbs. per square inch. With these constants he was enabled to find a bending moment on which to base his calculations for future work. He also tested tiles cemented together with plaster of Paris for shearing, which showed only 34 lbs. per square inch as against 124 lbs. for Portland cement. From this will be found another evidence of the unreliability of plaster mixtures for carrying loads, no less than for fire-proof qualities. In 1887 he worked out formulas for all the constructions he is likely to undertake under his system, which will well repay examination by those who are in any way skeptical as to its utility. Some of these deductions may not meet the approval of scientific engineers, but in most cases it may be said that they are within the results that

TUFTS BUILDING, BOSTON.

his practical experience has demonstrated in many instances. He has thus accumulated a mass of information for future use, which makes it easy for him to accomplish with safety constructive feats which appear to the uninstructed as simply marvelous. Quite different from an engineer who holds that all good construction is in a state of repose, he calls his product a *live* material, but not in the sense usually applied to the word. It is used rather to remind us that it has many other properties, such as stiffness and a disposition to transfer stresses in directions not experienced in gravity constructions, than those which are demonstrated by the authorities on building construction in general.

Before closing this part, it may be well to see how the Guastavino cohesive construction is regarded by other acknowledged experts, and for that reason I will quote



VESTIBULE CEILING.

from L. De Coppet Berg's "Safe Building": "The arches have some very great advantages. The principal one, of course, is their lightness of construction and saving of weight on the floors, walls, and foundations. Then, too, in most cases iron beams can be entirely dispensed with, the arches resting directly on the brick walls; of course, there must be weight enough on the wall to resist the horizontal thrust, or else iron tie-rods must be resorted to." He gives an example of a 3-in. cohesive tile arch of 20 ft. clear span, with a rise of 20 ins., and a floor load of 150 lbs. per superficial foot, uniformly distributed, computed graphically. His computation, however, is for a barrel arch, as if built in voussoirs; while Guastavino seldom builds, and does not recommend, barrel arches, but gives them a slightly curved section, longitudinally. It is, therefore, a very conservative calculation, but demonstrates that the greatest pressure per square inch in the arch section would be 130 lbs. As he gives 300 lbs. as a safe stress on a sample that he tested when only twelve days old, which is better than that obtained in the Guastavino tests of 1887, this computation is greatly in favor of the arch. He also calls attention to the danger of sliding in the horizontal joints, *only* in case strong cements are not used. But referring to his tests again, he says: "The shearing stress of the mortar joints is evidently greater than the tension, as samples tested tore across the tile and could not be sheared off." In this connection the following advice applicable to all arches applies equally to this kind: "In arches with heavy concentrated loads at single points there might, in rare cases, be danger of the load shearing right through the arch. The resistance to shearing would, of course, be directly as the vertical area of cross-section of the arch, and in such cases this area must be large enough to resist any tendency to shear."

(*To be continued.*)

Fire-proofing.

THE CENTRAL TRADING COMPANY'S NEW BUILDING, AT CHICAGO.

ANOTHER ILLUSTRATION OF THE EVOLUTION OF CONSTRUCTIVE ARCHITECTURE.

BY PETER B. WIGHT.

THE firm of Holabird & Roche has just completed another of a series of buildings at Chicago, which serves to give additional evidence of the evolution of Constructive Architecture in steel and clay in that city. The Central Trading Company's Building, occupied as part of the department store of Mandel Brothers, has been erected during the past six months at the northwest corner of Wabash Avenue and Madison Street. It fronts 64 ft. on the avenue, an equal amount on a wide alley in the rear, and 150 ft. on Madison Street. As will be seen, it is divided into three bays on the avenue front and seven on the street. Each bay is 21 ft., 1¾ ins. from center to center of steel exterior columns, and constitutes a constructional unit. The width over all is 64 ft. and the length 150 ft. The total height is nine stories and basement, but this height is not shown on any of the illustrations. Fig. 1, showing the method and order of construction, is from a photograph taken from the upper story of a building on Wabash Avenue, looking over the Elevated Railroad Station, and Fig. 2 shows only five bays and the four upper stories of the Madison Street front, from a photograph taken from the window of a building on Madison Street. Figs. 3 and 4 (see line

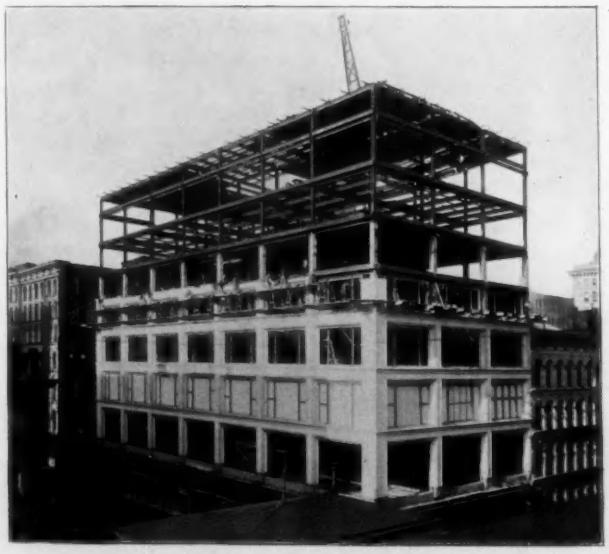


FIG. 1.

plates, Nos. 33 and 40) show the details of the whole construction to scale. It may be added for explanation that the buildings to the right and left, as shown on Fig. 1, are the older parts of the Mandel establishment, the latter being connected with the new building by enclosed bridges across the alley.

The spacing of the steel columns of the interior corresponds with those on the exterior, and the columns that carry the north side are built against the old party wall of the adjoining building, which belongs to the same owners. The fire-proofing and floor construction throughout is with porous terra-cotta. The floors are 15 ins. hollow tile, end-pressure construction, and were set before the enclosing walls. Outside and inside columns and girders were fire-proofed alike. The north wall above the roof of the adjoining building was enclosed with 12 ins. of brickwork, which was carried, 4 ins. in thickness, around both sides of the fire-proofing of

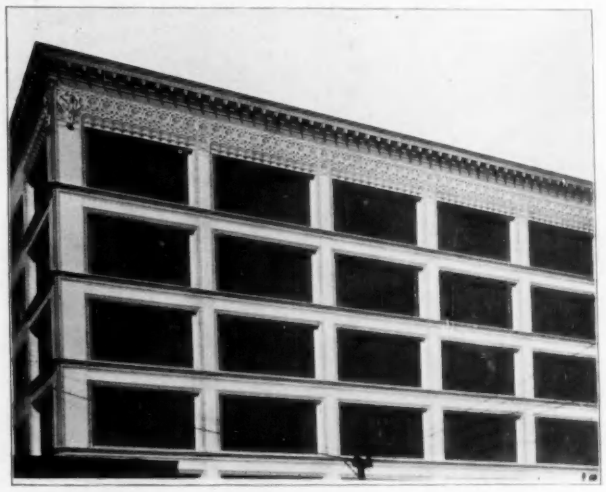


FIG. 2.

the columns, and enclosed the fire-proofed wall girders also.

The entire exterior is built with cream-colored enameled terra-cotta by the Northwestern Terra-cotta Company. Fig. 2 shows what this is so perfectly that no additional description is necessary. To show how this was attained, in one respect, I will say — though I hope that in so doing I am not betraying any secret — that all the bed joints of this terra-cotta were ground on a rubbing bed. No attempt has been made to "flatten" the surface of the enamel; it is as perfect as can be made. This perfection of workmanship has made it look as if made in a single piece, which is not satisfying to the critical eye. But time, and more especially smoke, will soon make the joints more evident.

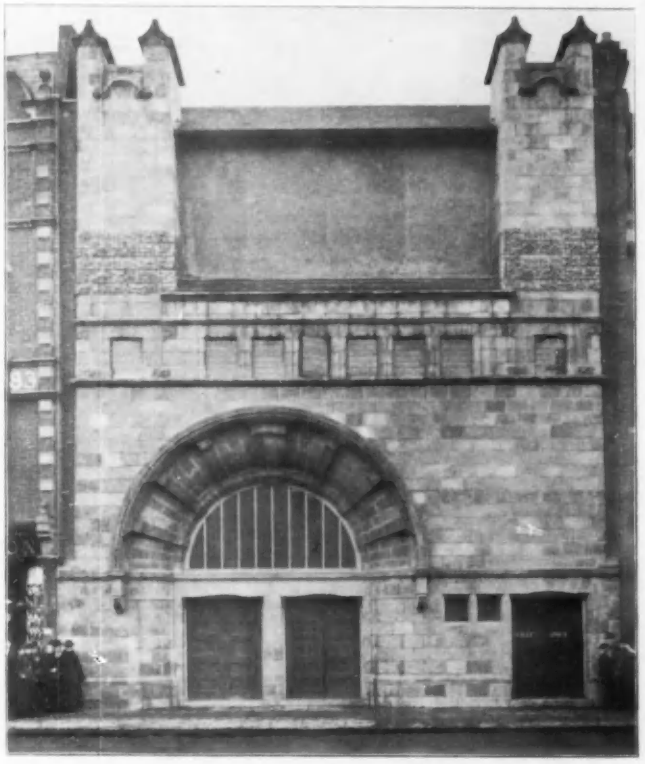
The speaking illustration (Fig. 2) and the scale details (Figs. 3 and 4) show better than words can tell how the problem has been considered from the point of view of artistic design. Here, again, is seen the use of broad windows in a high building so successfully used elsewhere by the same architects. But in this, also, the constructive lines are emphasized and harmonize with the commercial demand for the greatest amount of daylight. The idea of a wall is only suggested, the piers and transoms being only sufficient to cover the steel structure and sustain the window frames. The detail does not show its derivation from any of the historical styles of architecture; hence it must look to the future historian for a name. Some may say, "This is not art," but better let the future decide that.

Selected Miscellany.

ARCHITECTURAL AND BUILDING PRACTICE IN GREAT BRITAIN.

(By Our Special Representative.)

IN the retrospect of 1900, published in THE BRICKBUILDER for January, I gave some particulars of the efforts made to solve the great problem of housing



NEW ART GALLERY, WHITECHAPEL, LONDON.
C. Harrison Townsend, F. R. I. B. A., Architect.

the working classes, with special reference to the work of the London County Council. This is a subject which naturally concerns architects and builders particularly, for not only is there the planning of houses suitable for accommodating large numbers of persons in separate families, but special methods of construction are involved to a considerable extent, the great difficulty being to erect satisfactory houses which can be let at a low rental. The council have undertaken a new task. Hitherto their attention has been almost exclusively devoted to large blocks of tenements within the metropolitan area; now they have decided to erect a number of cottages on the outskirts of the city. At Norbury, in Surrey, an estate of thirty-one acres has been purchased, on which 551 single cottages and 211 double cottages will be erected; while at Tottenham (on the north of the city) cottages are to be built to house nearly 40,000 persons. This latter scheme is by far the largest of its kind yet undertaken by the council. Opinions differ as to the success of the projects. Some are optimistic, while others, reflecting on past experience, believe that the council will never be able to erect houses at such a price as will enable the rents to be within the reach of those workmen who are earning from one pound to thirty shillings a week. It is certainly true that the jerry-builder with limited capital is able to build houses cheaper than the authorities, but if one believes at all in the influence of environment on character, the appearance of these houses is a deterrent against this view of the case. It was hoped that the housing question, which is one of the most pressing of the day, would come before Parliament during the present session, but other matters have so far prevented this. When the subject is discussed, however, there will be such zeal displayed that some effective measure for solving the problem will most probably be passed. It is, perhaps, opportune to mention that the daily influx of inhabitants from the outskirts of London to the central parts is to a great extent the creation of the last thirty or forty years; it is estimated that nearly a million people enter and leave London daily by railways alone, and that the number of road vehicles has trebled during the last twenty-seven years. At the present time we have thousands of men, women, and children living amid the most distressing conditions, and our main thoroughfares, at certain times of the day, are so choked with vehicles and pedestrians that locomotion is impeded to a most inconvenient extent.

Cookham Buildings, here illustrated, cost $70,000. The block provides accommodation for 306 persons in 21 tenements of two rooms, 22 tenements of three rooms, 10 tenements of four rooms, and 1 tenement of five rooms. The rents vary from $1.75 to $3 a week, according to the tenement.

In my previous article I pointed out that there was a growing dissatisfaction with the manner in which some architectural competitions are conducted. It is not desirable now to refer at any length to this somewhat hackneyed subject, but here is a case in point which shows how very unsatisfactory these competitions may become. Some time ago it was decided to reconstruct the Royal Infirmary at Glasgow as a permanent memorial of the Diamond Jubilee of our late revered Queen. A competition was held, and Dr. Rowand Anderson, a

COOKHAM BUILDINGS, LONDON.

HOUSE AT BUFFALO, N. Y.
Green & Wicks, Architects.

very capable architect, was appointed assessor. Out of the designs submitted he placed first those by Mr. H. E. Clifford, of Glasgow, which was estimated to cost $1,190,000 to carry out, but the executive committee (who themselves appointed Dr. Anderson) thought fit to choose another of the designs submitted, a design costing more to execute than that selected by the assessor, and not even among the first four chosen by him. Now the question may very fairly be asked, What is the use of appointing a skilled assessor and paying him a large fee if you totally disregard his decision? The suggestion has been made that sometimes he may act as a decoy, but this is unworthy of any self-respecting authority. The Glasgow Institute of Architects very properly resented the committee's action, and issued a strong protest against such practices. Certain it is that if competitions are conducted in this manner, no reputable architects will enter for them. Another fact to be recorded in connection with this Glasgow competition is that with the printed conditions were issued two sets of sketch plans indicative of alternative arrangements, which the sub-committee recommended. These were not in accord with present-day principles of hospital design, as their authors possessed no architectural experience: the plans were out of date, and this fault is displayed in the accepted design, which is an elaboration of one of them. Six of the ten competing architects found it necessary, in spite of risk, to entirely throw over these plans.

HALL.

HOUSE FOR MISS M. T. HARRISON, CINCINNATI, OHIO.
Elzner & Anderson, Architects.

For years past attention has been directed to the existing law in regard to what are termed "ancient lights," a

HOUSE, MISS M. T. HARRISON, CINCINNATI, OHIO.
Elzner & Anderson, Architects.

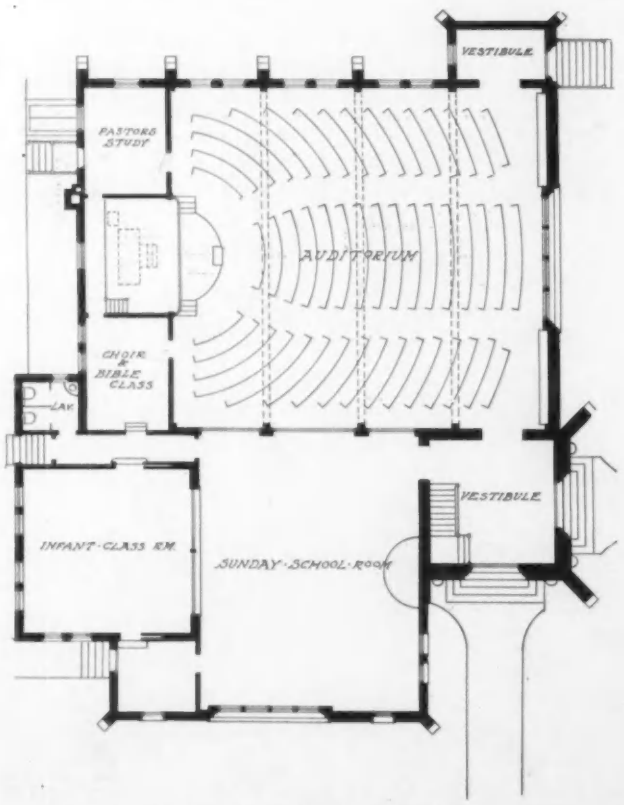
constant and most aggravating source of annoyance to architects. Under the Prescription Act, when a window has enjoyed unobstructed light for twenty years, the right to light is deemed absolute, and any encroachments by new buildings result in compensation — or worse. It has come to be considered that the rights are satisfied if the owner of the privileged windows get an uninterrupted view of 45 degs. of sky from the zenith, but the whole system is a most objectionable one. A joint committee of the Royal Institute and the Surveyors' Institution considered the matter and recently made certain proposals for reform, and it is hoped that these proposals will receive legal sanction, thus ridding architects of a constant source of trouble. Scotland has no "ancient lights."

The Architectural Association, which may be called the teaching body of the Royal Institute, has matured an important scheme for day courses of instruction. Architectural education is very inadequate in this country at the present time, and this scheme, by which pupils may learn the drawing of the Orders, elementary problems of construction, and a certain amount of practical office work and tracing, is worthy of every support. The

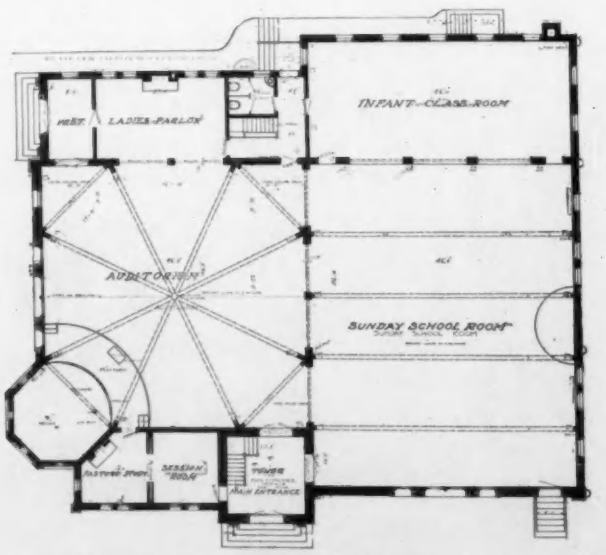
tuition is intended to be preparatory and supplementary for those who are about to enter, or who have entered, architects' offices as pupils. The first course of studies will last one year. Referring to the Architectural Association reminds one of the "New Century Greetings" from past-presidents which were published in the association's journal. Mr. Blashill, the late superintending architect to the London County Council, gives, perhaps, the most amusing advice. He says: "Your work is to design, estimate, and superintend buildings. Stick well to that. Eschew gardening, pastoral staves, and hammering of pots, but know about flowers. Be easy with archæology. Study old work sufficiently, modern work incessantly. Study, also, workmen and tools. Form an opinion of every building new to you; ponder wonderingly over the rest. Listen with discrimination. Pray against twaddlers, and stop your ears. (Have I not suffered fifty years under their droning!) Be always trying your hand at design, of which plan is the root, elevation the flower. You will do better than you expect; might found a School. How the critic would enjoy the scent of your heels!"

CHURCH AT ST. LOUIS, MO.
Weber & Groves, Architects.

I may now refer to the accompanying illustration of the new art gallery erected at Whitechapel from designs by Mr. C. Harrison Townsend, F. R. I. B. A. The building was formally opened by Lord Rosebery on March 12 last, and is a most distinctive piece of work. The facade is carried out in terra-cotta, of a pleasing buff color, supplied by Messrs. Gibbs & Canning of Tamworth, and of the same kind as that used in the Bishopsgate Institute, which was described by the late Sir Edward Burne-Jones as "most beautiful." The architect, as an advocate of the wider use of color in London street frontages, has, as at the Horniman Museum, made a prominent feature of the introduction of a large mosaic panel, suggestive of the objects of the building. It will be 25 ft. long by 13 ft. high, and will be recessed between the two



PLAN, COTE BRILLIANTE PRESBYTERIAN CHURCH,
ST. LOUIS, MO.
Grable & Weber, Architects.
(See Half-Tone Plate Form.)



PLAN, WESTMINISTER PRESBYTERIAN CHURCH,
ST. LOUIS, MO.
Weber & Groves, Architects.
(See Half-Tone Plate Form.)

TERRA-COTTA FIRE-PROOF CONSTRUCTION, FREE PUBLIC LIBRARY BUILDING, NEWARK, N. J.
Work executed by the Raritan Hollow and Porous Brick Company.
Rankin & Kellogg, Architects.

turrets so as to allow a pent roof to protect it from the beating weather. This panel has not yet been executed, but a beautiful design for it has been prepared by Mr. Walter Crane. The subject is, "The Sphere and Message of Art."

NOTES FROM NEW YORK.

"Moving day" has come and gone, and has brought many changes in the downtown district. The historic old Stock Exchange is being demolished to make way for the new and larger building which is to be erected on the site, from plans by George B. Post. The Exchange meets temporarily in the Produce Exchange Building. In this connection I cannot refrain from a brief pause for a eulogium on the Produce Exchange Building, one of the first really large buildings in the city, and still one of the very best architecturally. There is a massive dignity about it, with its heavy walls and deep recessed openings, that in this age of skeleton construction will never be duplicated, and which effect is lost to architecture as far as office buildings are concerned, unless the architect boldly disregards current methods, as in the case of the Singer Building, and makes his outside walls of solid masonry. The Produce Exchange Building is beautifully proportioned, beautifully detailed, and has a rich warm color which makes it a landmark of lower New York, and which adds greatly to the *ensemble* as seen from the bay. It is, moreover, according to my notion, the best work ever done by Mr. Post.

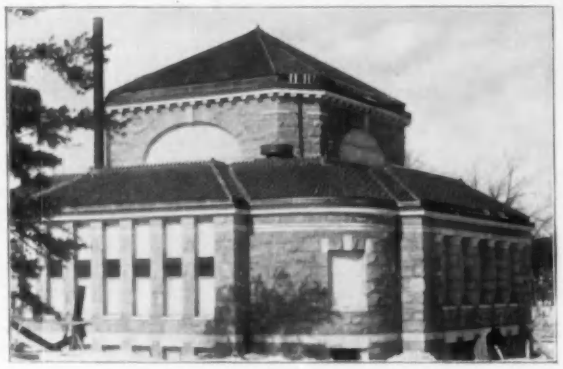
FIREPLACE, EXECUTED IN FAIENCE, BY THE GRUEBY FAIENCE COMPANY.
J. A. Schweinfurth, Architect.

MURTLAND BUILDING, PITTSBURGH, PA.
Built of brick made by the Ohio Mining and Manufacturing Company.
Alden & Harlow, Architects.

Other noticeable changes are taking place on Liberty Street, where two old office buildings are being removed to make room for the new Chamber of Commerce, and on the corner of Broadway and Maiden Lane, where two buildings are being removed to make way for a sky-scraper.

McKim, Mead & White have filed plans for a handsome residence to be built on 73d Street for Mr. Joseph Pulitzer. Brick and limestone will be used for the front of the house, which will be five stories high. The architects estimate that the dwelling will cost $200,000.

Mr. Ulrich J. Huberty, a Brooklyn architect, has won



SHELDON LIBRARY, CONCORD, N. H.
Showing roof covered with "American S." roofing tile.
Ernest Flagg, Architect.

the competition for the large brick crematory to be built at Ravenswood, L. I. The building will cost $70,000.

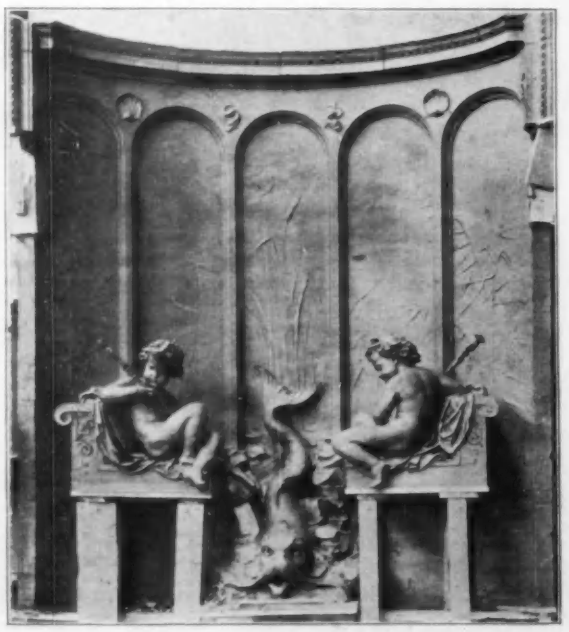
NOTES FROM MINNEAPOLIS AND ST. PAUL.

The outlook for 1901 has been unusually promising, there being a large demand for business quarters, as well as for flats and modern residences. There will be a considerable number of heavy warehouse buildings erected this year, several of which are already under way.

Our new Chamber of Commerce will be six stories, of pressed brick and terra-cotta; cost, $400,000. Kees & Colburn, architects.

The Minneapolis *Times* has broken ground for a business building for its own use, to cost about $75,000.

The superstructure of the new Asbury M. E. Hospital will be completed during 1901. It will be thoroughly modern and fire-proof, the floors and roof to be of hollow tile. The exterior will be of cream or buff brick, and a large amount of ornamental terra-cotta will be used. There will be practically no structural iron or steel in this building. Cost complete, $200,000. E. P. Overmire, architect.



FOUNTAIN IN DEPOT WAITING ROOM.
Perth Amboy Terra-Cotta Company, makers.
T. P. Chandler, Architect.

At St. Paul the items of greatest interest are the appropriation of another $1,000,000 for completion of new State Capitol. Cass Gilbert, architect.

S. F. Heath, who formerly practised in Minneapolis with the late W. H. Hayes, has given up his plan to return here, having formed connections at Seattle, Wash.

L. S. Buffington, formerly the leading architect of the "Twin Cities," is here, having made a fortune out of his acetylene patents.

Since the dissolution of the Minnesota Chapter, A. I. A.,

WALBRIDGE BUILDING, BUFFALO, N. Y.
Union Akron cement used in foundation and construction.
Green & Wicks, Architects.

the architects of St. Paul and Minneapolis have had little in common. It is to be hoped that returning prosperity will lead to reorganization and the interchange of courtesies and ideas that characterized the old chapter.

PERSONAL, CLUB, AND SUNDRY ITEMS.

George A. Freeman, architect, New York City, announces his removal from 27 East 20th Street to 566 Fifth Avenue.

Howland Russel and William H. Schuchardt announce

CARTOUCHE BY HORACE TRUMBAUER, ARCHITECT.
Conkling-Armstrong Terra-Cotta Company, makers.

that they have formed a partnership for the practice of architecture, with offices at 51 Hathaway Building, Milwaukee.

Edward R. Swain, architect, of San Francisco, has opened a branch office in the Stanginwald Building, Honolulu, H. I. Manufacturers' catalogues and samples desired.

Reynolds Fisher has given up the practice of architecture and has settled in business in Seattle. The architectural firm of Patton, Fisher & Miller, Chicago, from which Mr. Fisher has retired, will be continued by the remaining partners, Normand S. Patton and Grant C. Miller, under the title of Patton & Miller.

The Committee of Experts of the Art Federation of Philadelphia, composed of the following architects and engineers — John Burkenbine, president of the Franklin Institute, Theo. N. Ely, superintendent of motive of the Pennsylvania Railroad, Wilson Eyre, Jr., Charles E. Dana, and Albert Kelsey, chairman — have completed plans for a new parkway to connect the City Hall with Fairmount Park, and an ordinance prepared by ex-Mayor Warwick will be immediately presented to councils.

PANEL.
New Jersey Terra-Cotta Company, makers.

PANEL BY WIDMANN, WALSH & BOISSELIER, ARCHITECTS.
Winkle Terra-Cotta Company, makers.

The residence at Minneapolis, Minn., F. B. and L. L. Long, architects, which is illustrated in the half-tone plate form of this number, was built of brick manufactured by the Columbus Brick and Terra-cotta Company.

The house at Wilkesbarre, Pa., Wilson Eyre, Jr., architect, illustrated in the half-tone plate form of this number, was built by George T. Dickover, to whom we are indebted for the photographs.

The Chicago Architectural Club at its last meeting elected the following officers under the newly revised constitution: President, Robert C. Spencer, Jr.; vice president, Emil Lorch; second vice-president, E. C. Hemmings; secretary, John H. Phillips; treasurer, Adolph Bernhard. The other members of the executive committee are Robert E. Bourke and T. E. Talmadge.

At the annual meeting of the St. Louis Architectural Club the following list of officers was elected to serve for one year: President, G. F. A. Brueggeman; first vice-president, James P. Jamieson; second vice-president, Charles O. Pfeil; secretary, Ernest Helfensteller, Jr.; treasurer, Charles H. Deitering; advisory committee, Edward G. Garden, Frank A. P. Burford; auditors, S. L. Sherer, Charles H. Deitering.

The preliminary draft of program, showing the general allotment of time at the third

DETAIL BY CHARLES I. BERG, ARCHITECT.
New York Architectural Terra-Cotta Company, makers.

annual convention of the Architectural League of America, to be held at Philadelphia, May 23, 24, 25, 1901, is as follows: First day, May 23. — In the galleries of the Art Club. 9 A. M., registration of delegates, etc.; 11 A. M., first session of convention; 3 P. M., take special steamer to Newcastle, Del., where the old Colonial architecture of the place will be inspected, and the whipping-post and pillory, still in occasional use, will be viewed. Supper will be served on board in the evening, while returning to the city. Possibly other stops

OFFICE BUILDING FOR THE SATTLEY MANUFACTURING COMPANY, SPRINGFIELD, ILL.
George H. Helmle, Architect.

may be made. Second day, May 24.—At the University of Pennsylvania. 10 A. M. to 1 P. M., business session in Houston Hall; 1 to 3.30 P. M., luncheon and reception by the provost, trustees, and faculty in the Museum of Archæology; 3.30 P. M., business session in Houston Hall; 8.30 P. M., an entertainment will be given at the rooms of the T Square Club. Third day, May 25.—In the galleries of the Art Club. 10 A. M. to 1 P. M., morning session; 2.30 P. M., afternoon session for unfinished business, etc.; 7.30 P. M., banquet at Horticultural Hall. The T Square Club will be most happy to welcome its friends in Philadelphia during the third convention of the Architectural League of America, to be held May 23 to 25, inclusive. The Hotel Walton, Broad and Locust Streets, has been selected as visitors' headquarters, special accommodations, at reduced rates, being held in reserve.

CAPITAL FOR SCHOFIELD BUILDING, CLEVELAND, OHIO.
Atlantic Terra-Cotta Company, makers.
Levi T. Schofield, Architect.

ANNOUNCEMENT.

HENRY MAURER & SON beg to extend to all architects and engineers visiting the Pan-American Exposition a cordial invitation to inspect their exhibit of clay products for building and other purposes, assuring them of a hearty welcome.

To those engaged in fire-proof construction, as well as to those branches of manufacturing requiring a high grade of fire-brick, much will be found of interest.

NEW BOOKS.

TABLES AND DIAGRAMS FOR CALCULATING THE STRENGTH OF WOOD, STEEL, AND CAST-IRON BEAMS AND COLUMNS. By Benjamin E. Winslow, graduate of the School of the Technical Society, Copenhagen, Denmark; Architectural Engineer for the Chicago Board of Education.

This book furnishes to engineers, architects, and others interested in the construction of small or large structures of wood or metal a rapid and easy means of computing the sizes of beams and columns by the use of graphical tables. The tables have been in use for several years in making calculations for the erection of school and other important buildings in Chicago.

Cloth, oblong, 12 by 9 in.; 53 pp., including 19 full-page plates. Price, $2.00. The Engineering News Publishing Company, 220 Broadway, New York.

We are frequently asked for information regarding clay-working machinery, by those who are considering the enlargement of their plants, or others who are contemplating starting in business anew. As if to aid us and those of whom we speak, there has just come to hand a publication, issued by the American Clay-working Machinery Company, of Bucyrus, Ohio, which is in itself an encyclopedia upon the subject. In this work the company describes in detail its whole line of manufacture in a most comprehensive way. The reputation of this company, which is the largest in the country, gives to this new work the value of a text-book upon the whole subject of clay-working machinery.

IN GENERAL.

The Union Akron Cement Company, of Buffalo, are furnishing 1,000 barrels of their Akron Star brand for the new buildings of the Iroquois Portland Cement Company, at Caledonia, N. Y. Also a large quantity for the new elevator being built at Nelsonville, Ohio.

Sayre & Fisher Company's brick have been specified on the following new work about Boston: Institute for Savings, Roxbury, Peabody & Stearns, architects; addition to Converse Building, Boston, Winslow & Bigelow, architects; library, Plymouth, Everett & Mead, architects; bank building, Malden, Shepley, Rutan & Coolidge, architects.

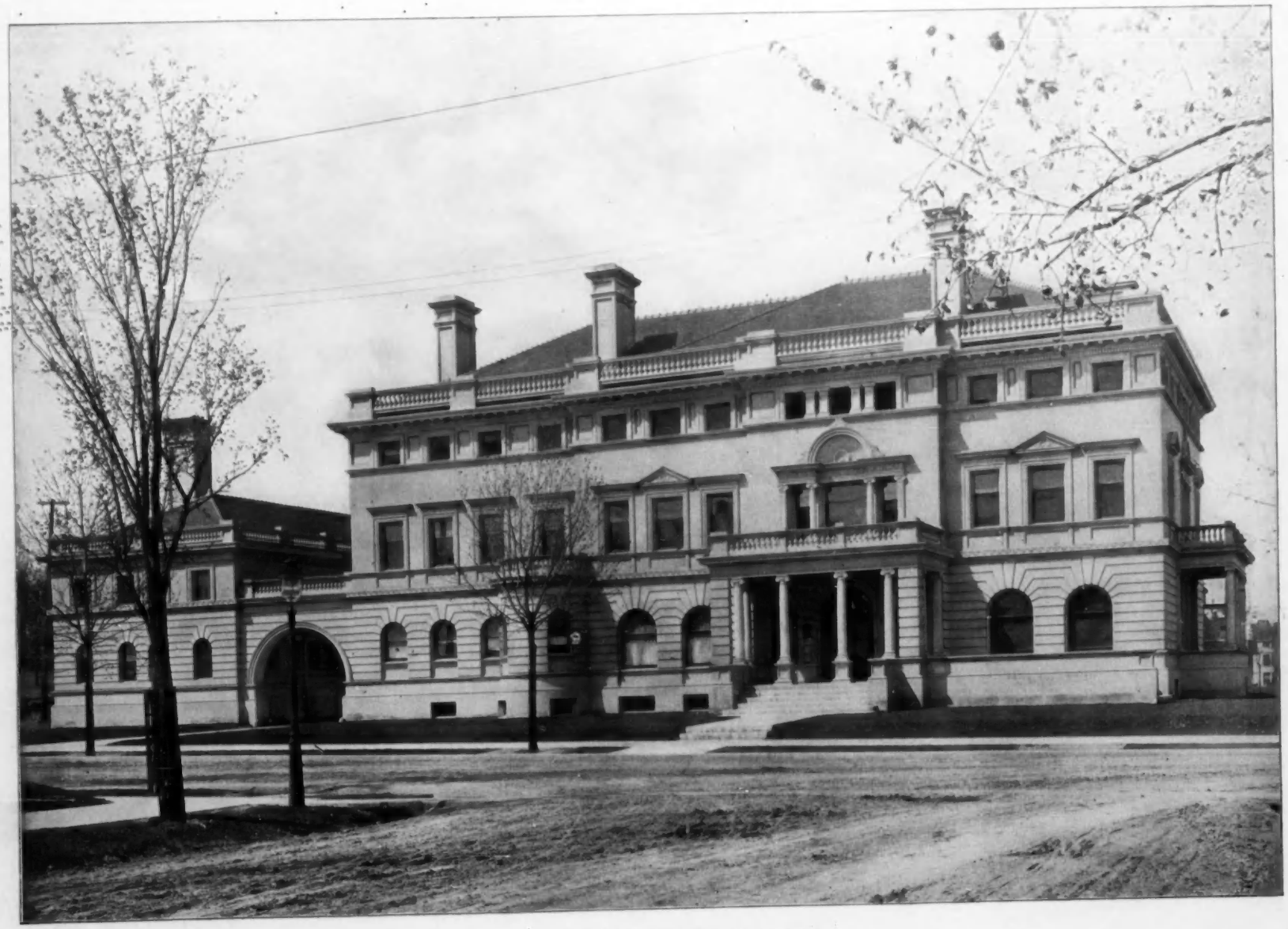
The Hartford Faience Company announce that they will at all times carry a full line of wall, base, and capping tile in various colors, but that mantel work will be made only on order. Estimates will be furnished on application.

PANEL, HOLABIRD & ROCHE, ARCHITECTS.
Northwestern Terra-Cotta Company, makers.

NOLM

HOUSE AT WILKESBARRE, PA.

WILSON EYRE, JR., ARCHITECT.



HOUSE AT MINNEAPOLIS, MINN.

F. B. & L. L. LONG, ARCHITECTS.

ПОЛЯ

OFFICE BUILDING FOR BERRY BROS. DETROIT, MICH.

GEORGE D. MASON, ARCHITECT.

ПОЛИ

HOUSE AT WILKESBARRE, PA.

WILSON EYRE, JR. ARCHITECT.

COTE BRILLIANTE PRESBYTERIAN CHURCH, ST. LOUIS MO.

GRABLE & WEBER, ARCHITECTS.

WESTMINISTER PRESBYTERIAN CHURCH, ST. LOUIS, MO.

WEBER & GROVES, ARCHITECTS.

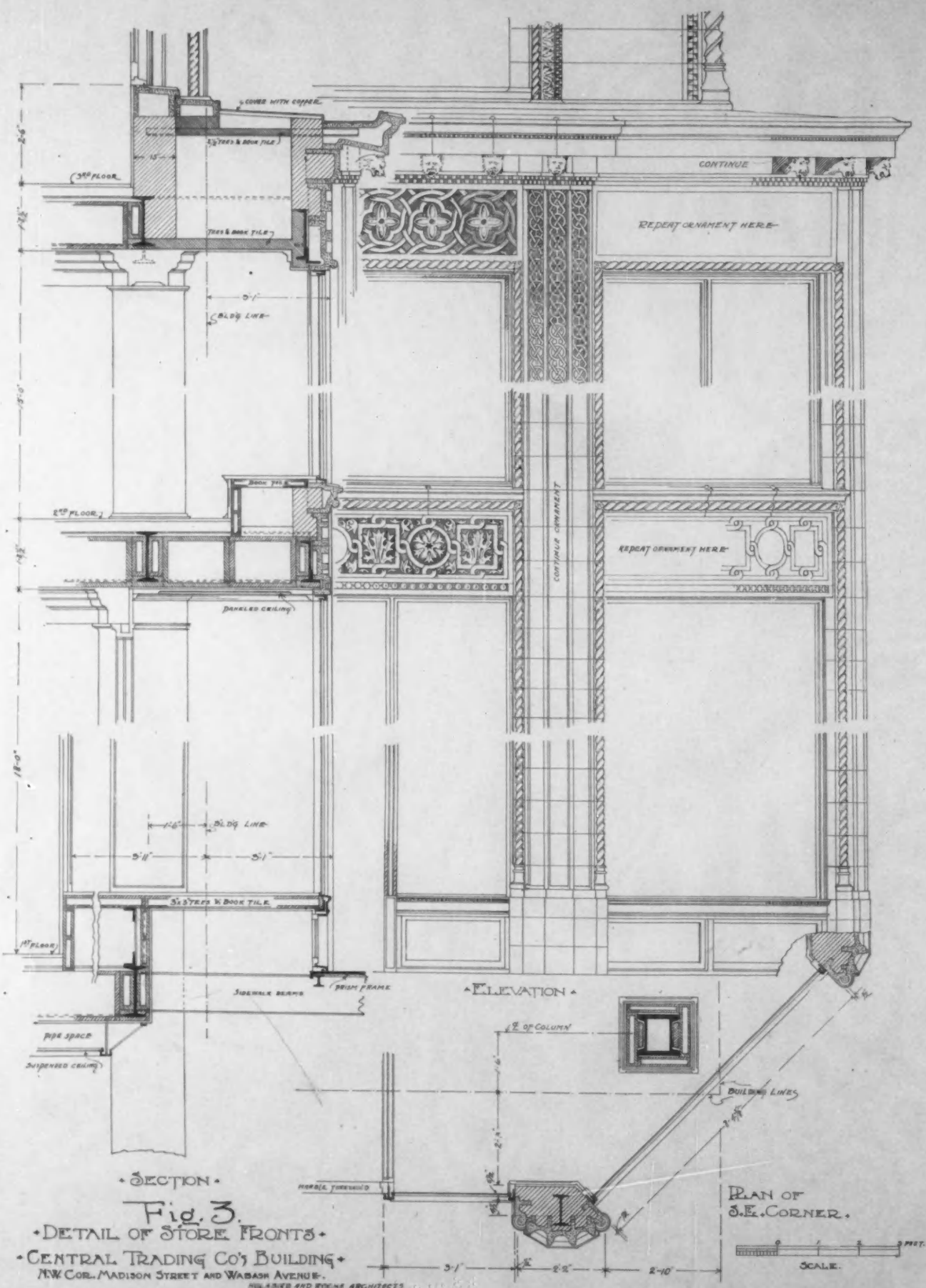


Fig. 3.

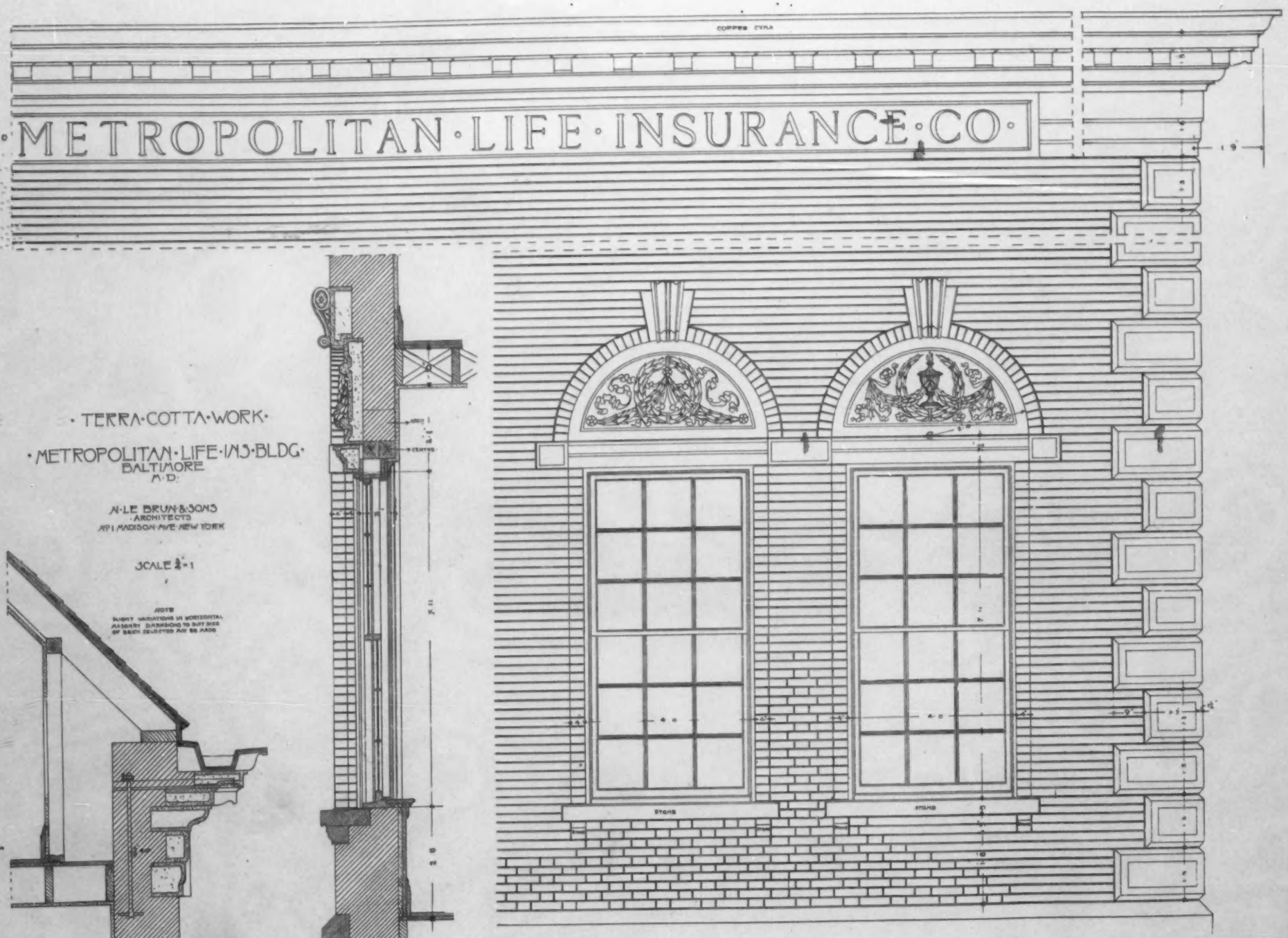
DETAIL OF STORE FRONTS

CENTRAL TRADING CO'S BUILDING

N.W. COR. MADISON STREET AND WABASH AVENUE.

HOLABIRD AND ROCHE ARCHITECTS
1618 MONADNOCK BLOCK. CHICAGO.

ПОЛЬ



· TERRA·COTTA·WORK·

· METROPOLITAN·LIFE·INS·BLDG·
BALTIMORE
MD

N·LE BRUN & SONS
· ARCHITECTS
1 MADISON AVE NEW YORK

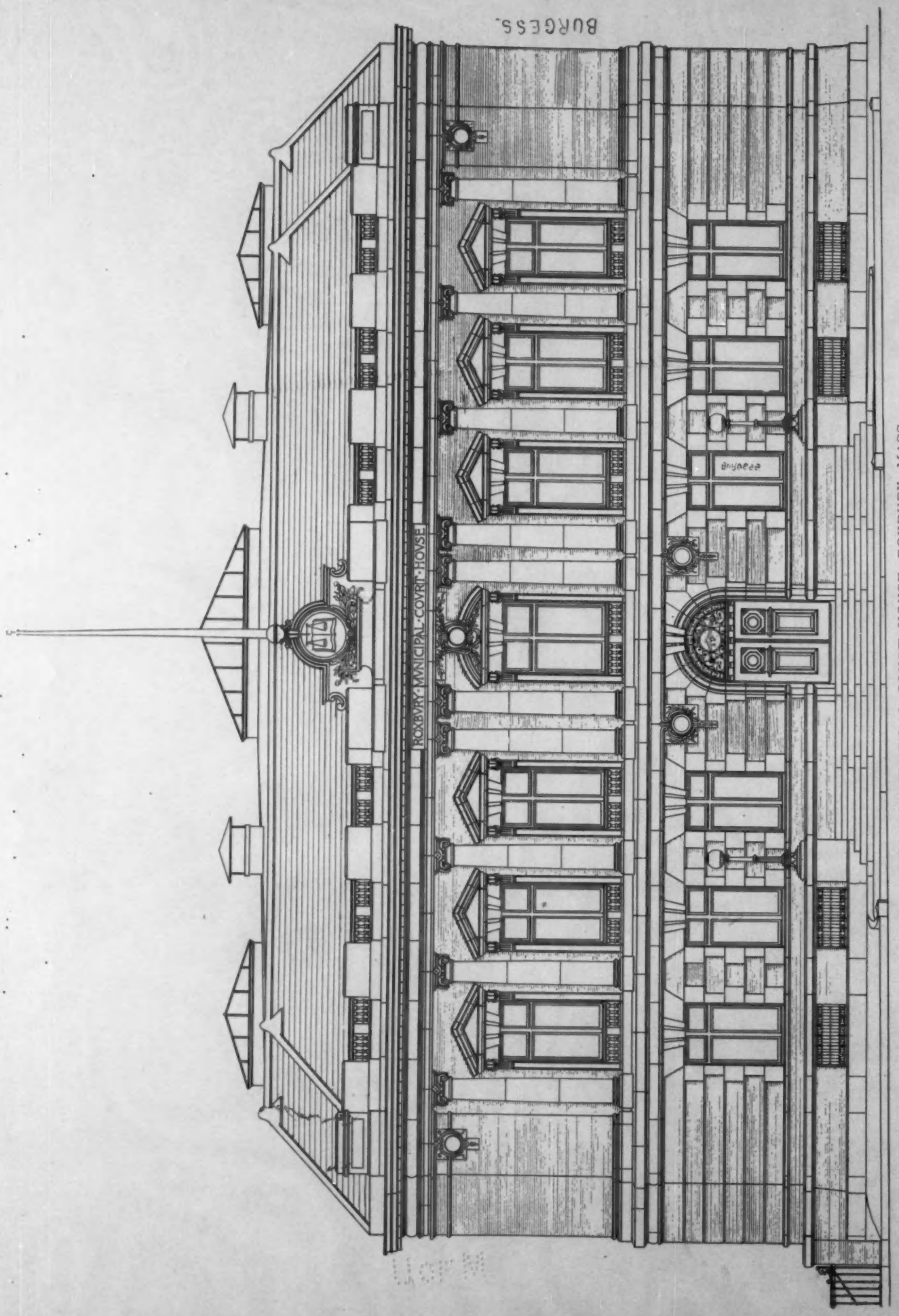
SCALE 1½ = 1

NOTE
SLIGHT VARIATIONS IN HORIZONTAL MASONRY DIMENSIONS TO SUIT SIZE OF BRICK SELECTED MAY BE MADE

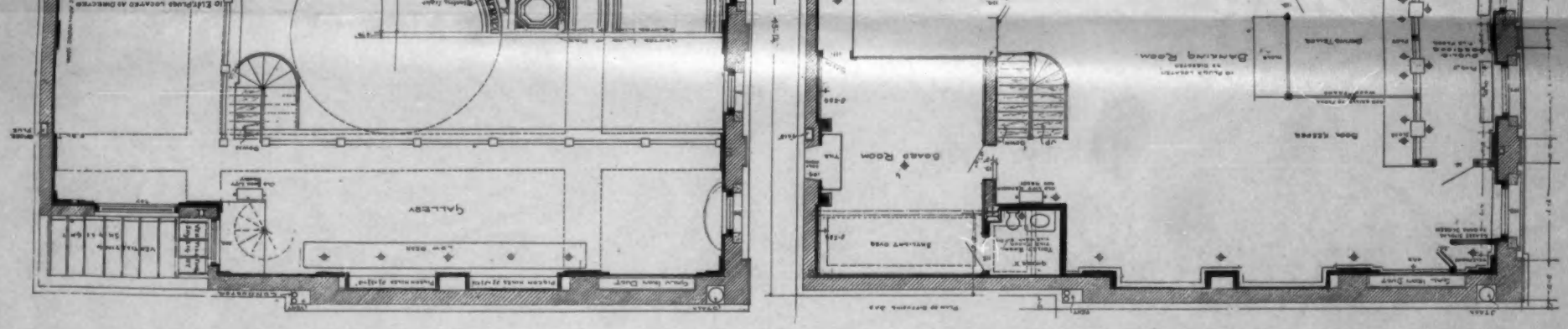
DETAIL, METROPOLITAN LIFE INSURANCE BUILDING, BALTIMORE, MD.
N. Le Brun & Sons, Architects.

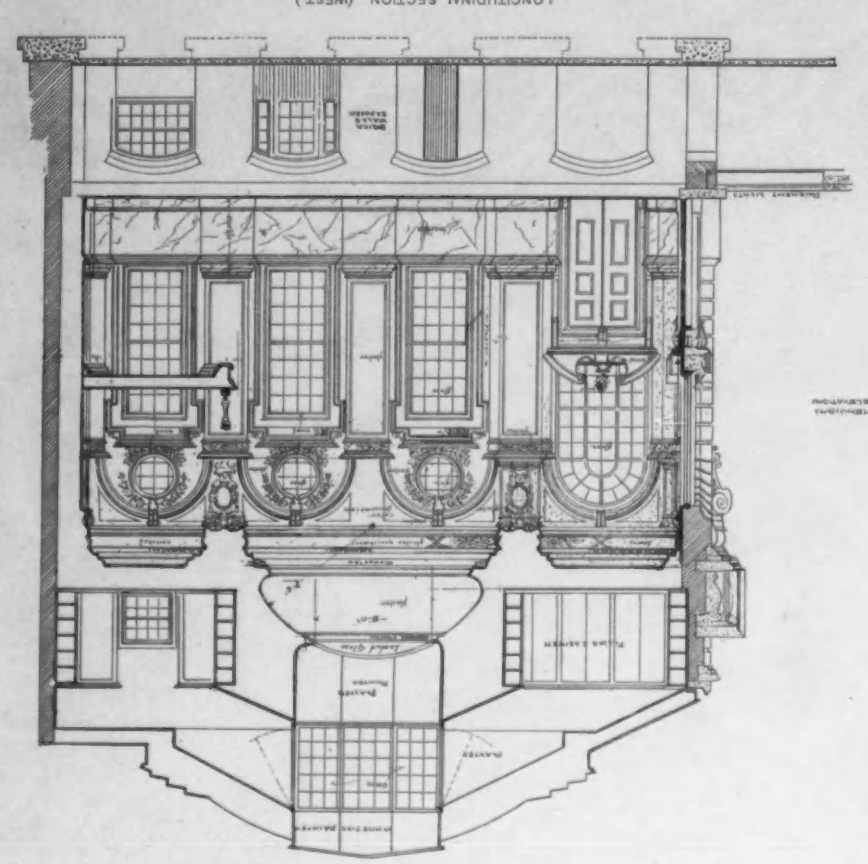
ПОЛЯ

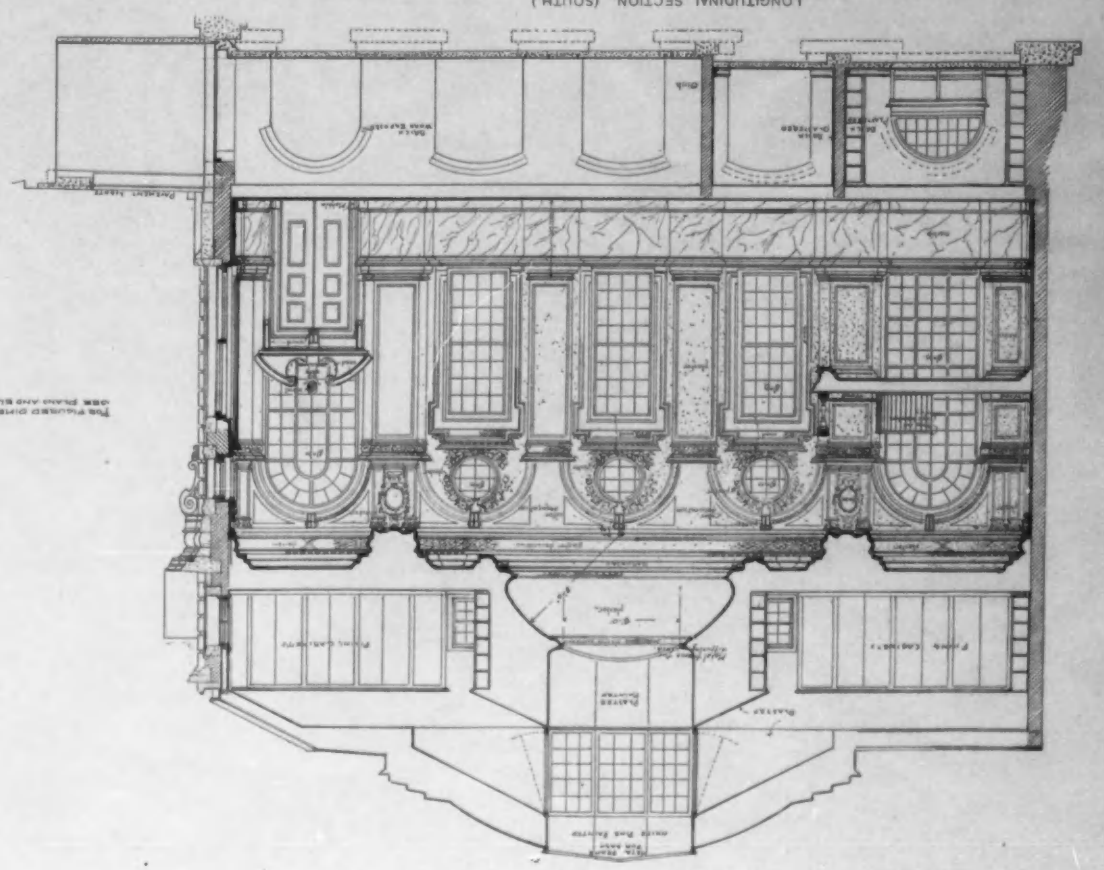
N. LE BRUN & SONS, ARCHITECTS.

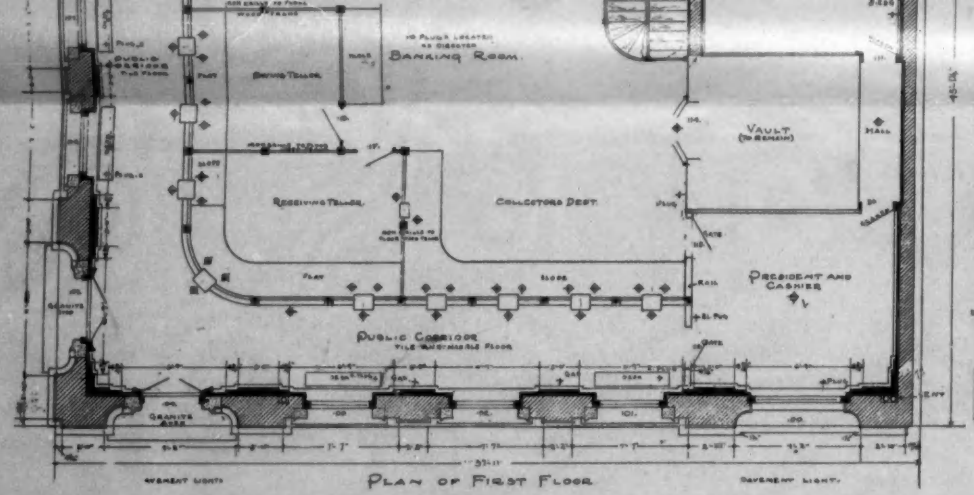


ROXBURY MUNICIPAL COURT HOUSE, ROXBURY, MASS.
ALLEN & VANCE, ARCHITECTS.

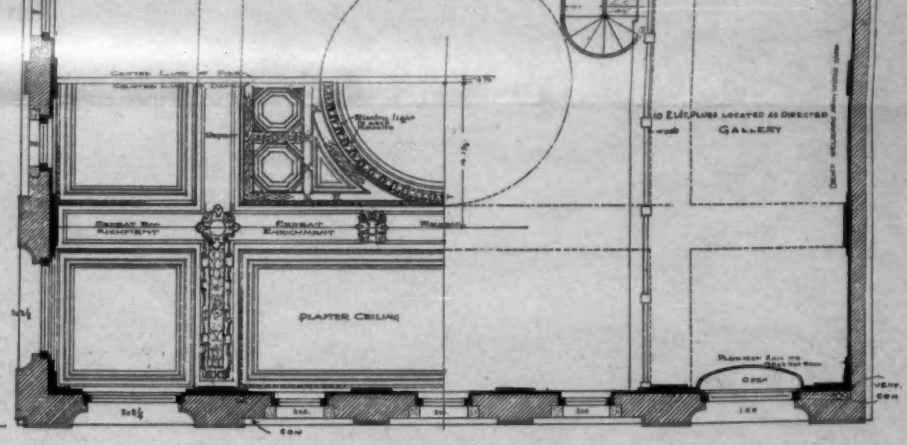



LONGITUDINAL SECTION. (WEST.)

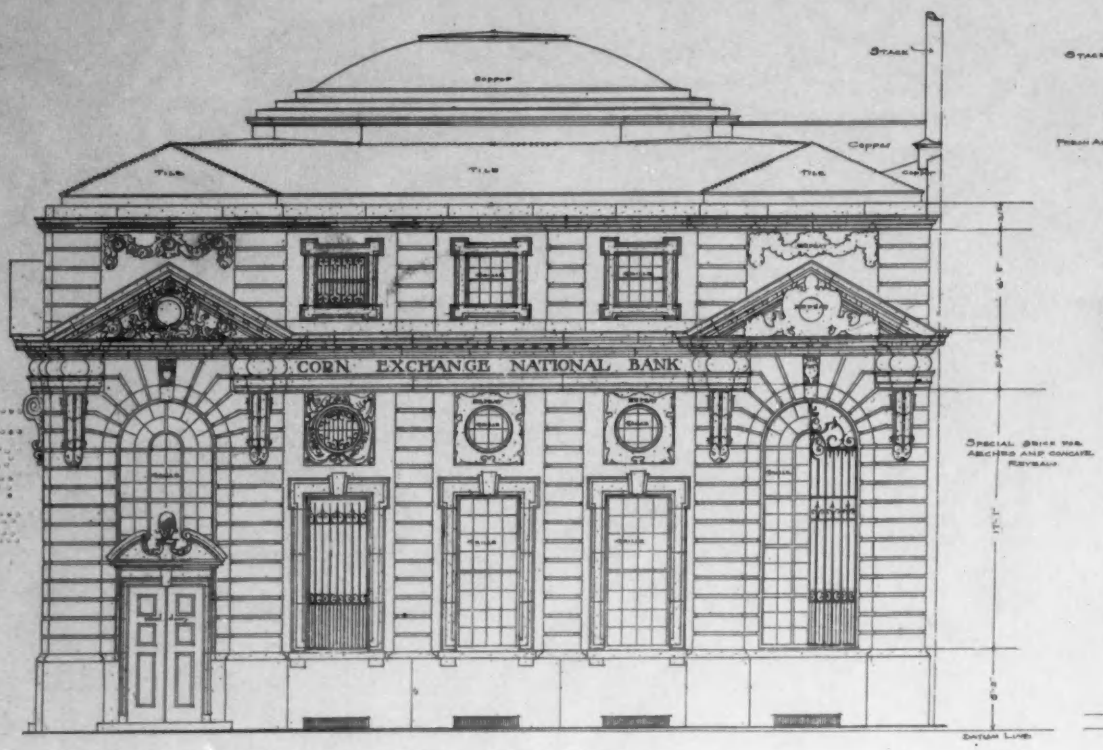

LONGITUDINAL SECTION. (SOUTH.)



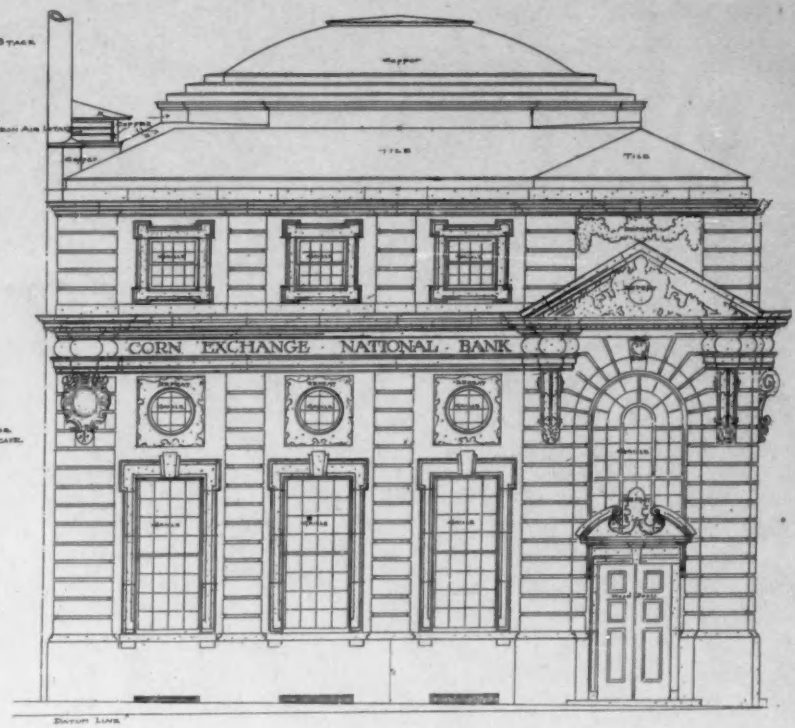
PLAN OF FIRST FLOOR.



PLAN OF GALLERY FLOOR.



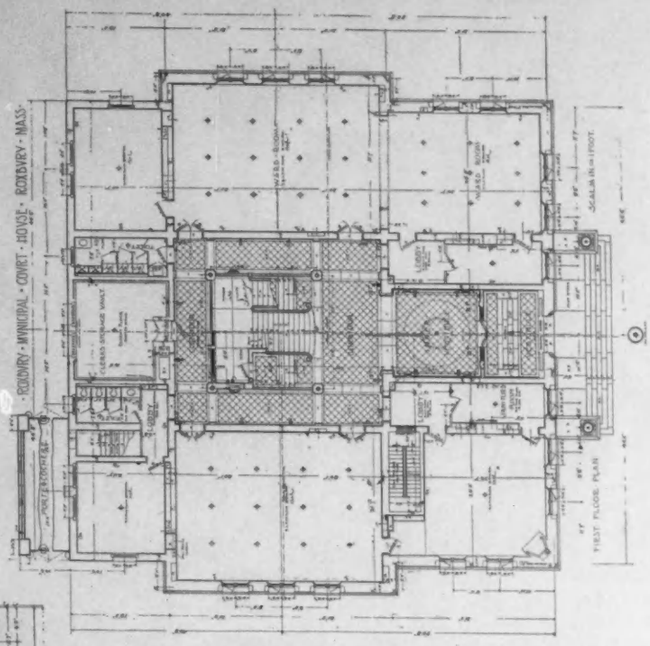
CHESTNUT STREET ELEVATION.



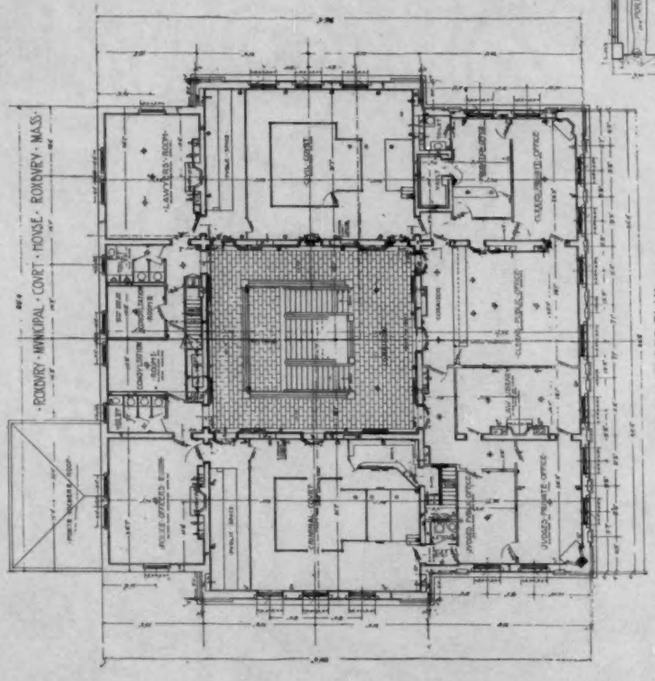
SECOND STREET ELEVATION.

CORN EXCHANGE NATIONAL BANK BUILDING, PHILADELPHIA, PA.

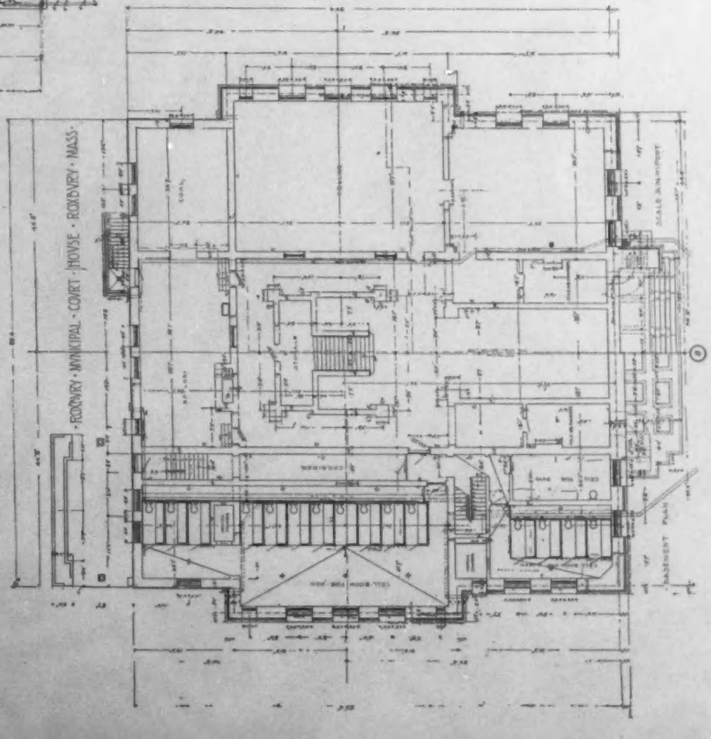
NEWMAN, WOODMAN & HARRIS, ARCHITECTS.



FIRST FLOOR PLAN.



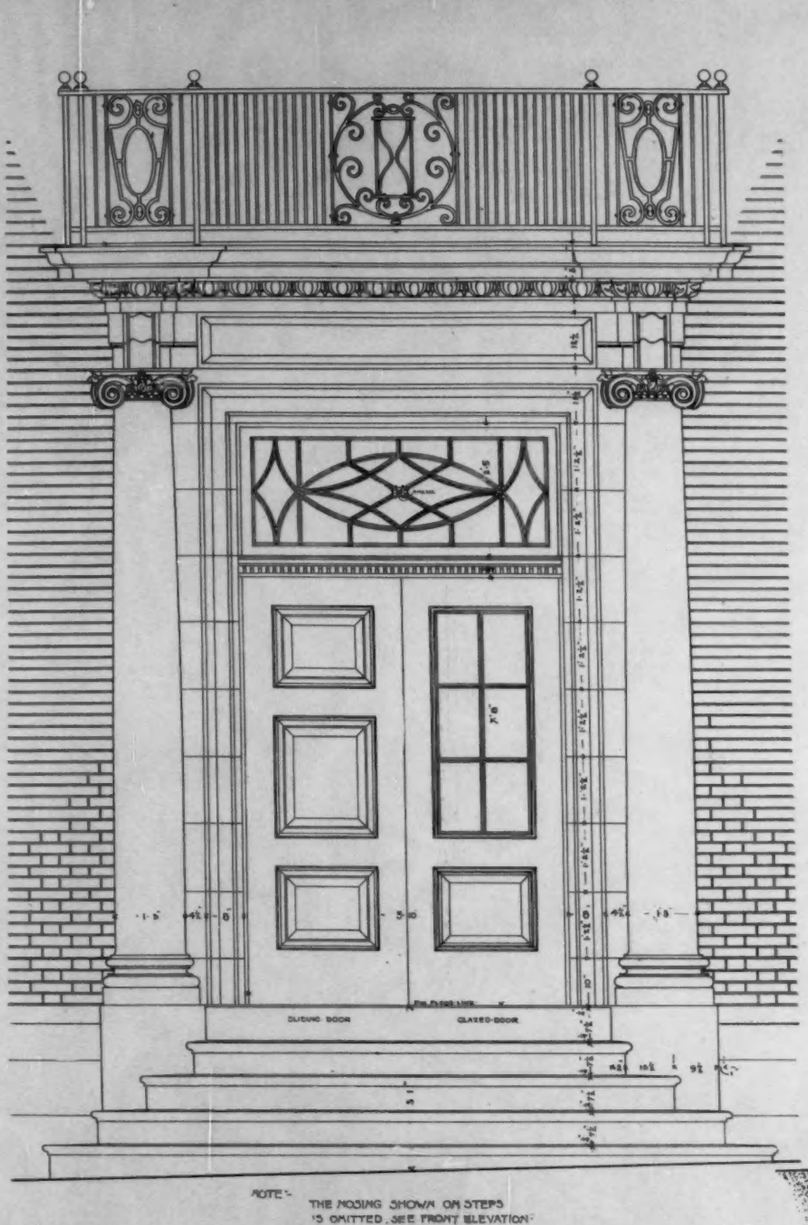
SECOND FLOOR PLAN.

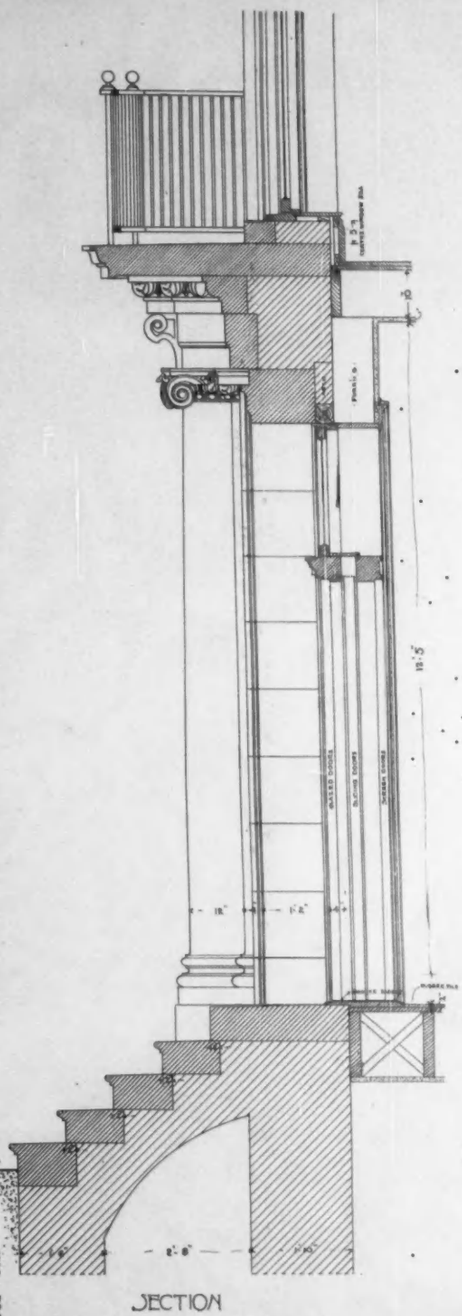


BASEMENT PLAN.

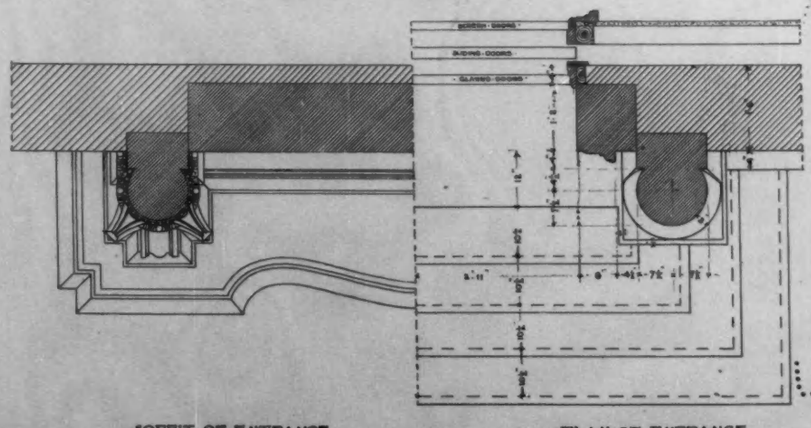
ROXBURY MUNICIPAL COURT HOUSE, ROXBURY, MASS.

ALLEN & VANCE, ARCHITECTS.





SECTION



SOFFIT OF ENTRANCE

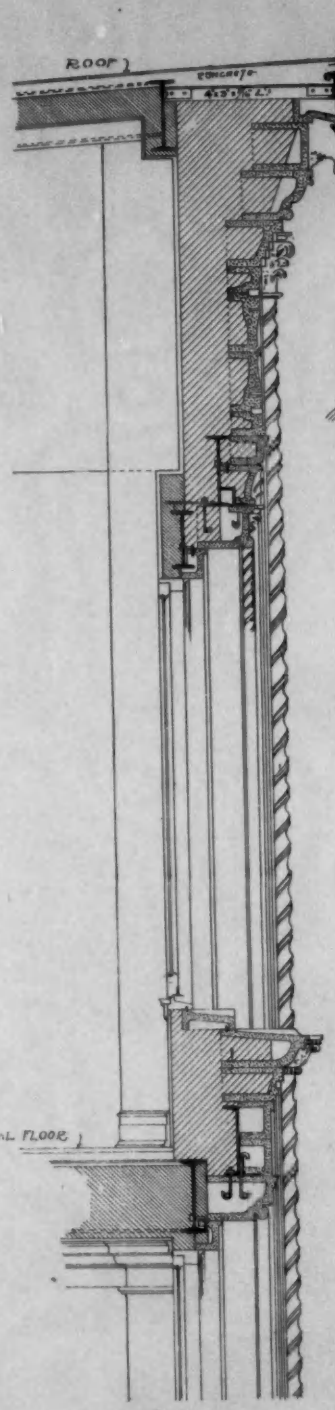
PLAN OF ENTRANCE

DETAIL OF ENTRANCE
METROPOLITAN LIFE INS. BLDG.
BALTIMORE
M.D.
N. LE BRUN & SONS
ARCHITECTS
281 MADISON AVE. NEW YORK
SCALE ¼"=1'

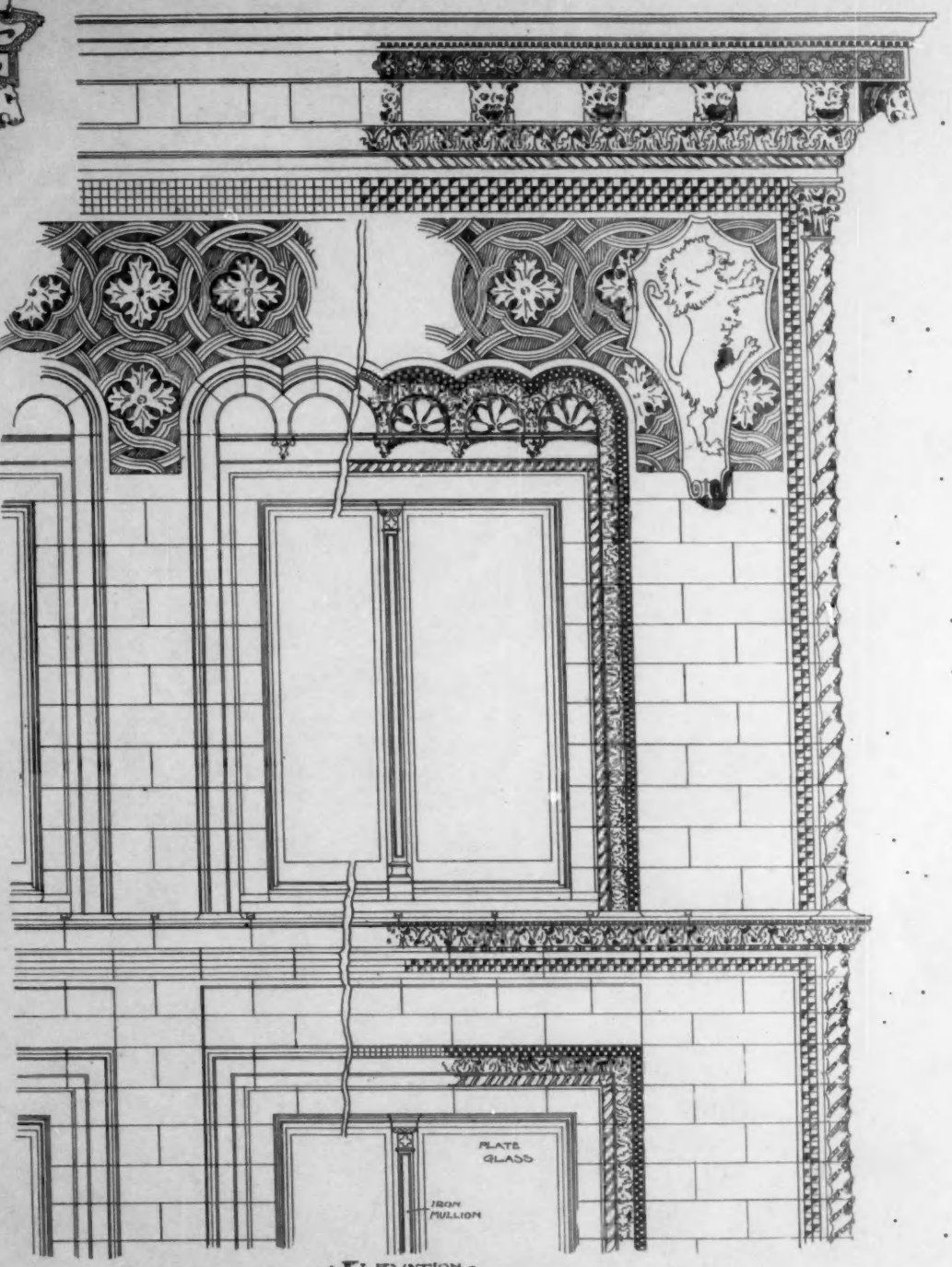
U OF M

DETAIL, METROPOLITAN LIFE INSURANCE BUILDING, BALTIMORE, MD.
N. Le Brun & Sons, Architects.

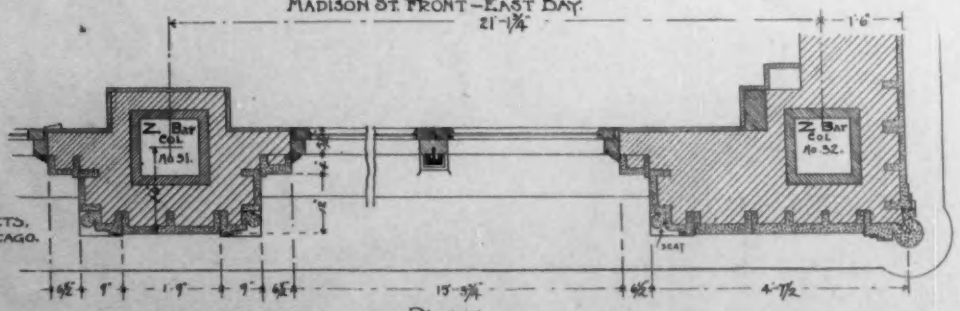
ПОЛЯ



• SECTION •



• ELEVATION •
MADISON ST. FRONT — EAST DAY.



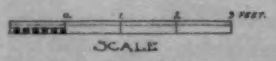
PLAN

Fig. 4.

DETAIL OF FRONT ELEVATION

CENTRAL TRADING CO:S BUILDING
N.W. COR. MADISON ST. AND WABASH AVE.

MOLABIRD AND ROCHE ARCHITECTS,
1618 MONADNOCK BLOCK, CHICAGO.



SCALE